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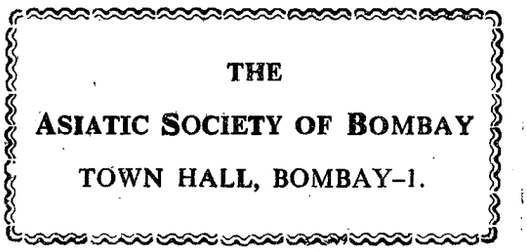

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THE
Natural Hiſtory
OF
STAFFORD-SHIRE.
BY

ROBERT PLOT. LLD.
Keeper of the
ASHMOLEAN MUSÆUM
And
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in the
UNIVERSITY
of
OXFORD.

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Ye ſhall Deſcribe *the Land, and bring the* Deſcription *hither to Me.* Joſhua 8. *v.* 6.

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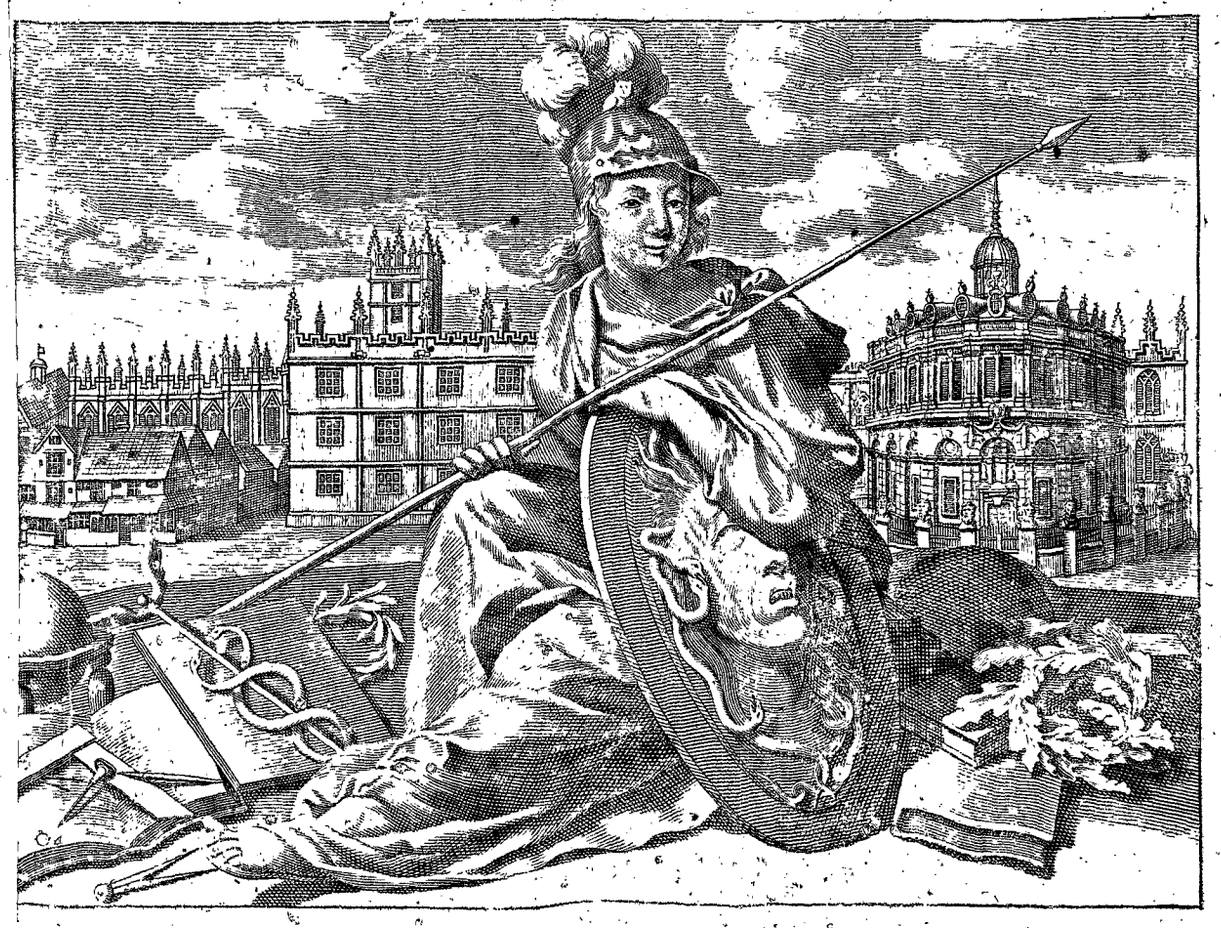

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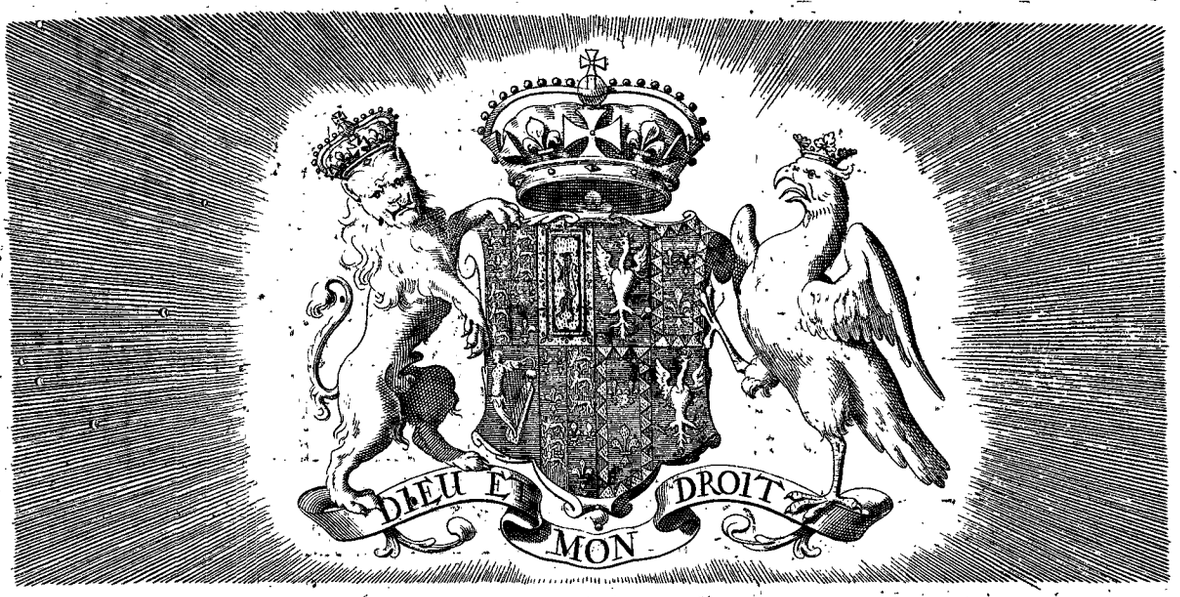


To the Moſt Sacred Majeſty

OF

JAMES the *SECOND*

KING of Great BRITAN, FRANCE and IRELAND

Defender of the *FAITH*, &c.

May it pleaſe Your Majeſty,

THE Character Your Majeſty was pleas'd publicly to afford the Hiſtory of *Oxfordſhire*, when You laſt vouchſafed your Univerſity of *Oxford* the Honor of a Viſit, gives me confidence to lay

lay the like account of *Staffordſhire* at Your Majeſties feet, and appeal once more to Your Roial Judgment; wherein if ſuccesful, I ſhall little value what other men think; but cheerfully acquieſce in Your Majeſties deciſion, as in duty becoms

Your Majeſties *moſt Loial,*

and moſt Obedient

Subject

ROBERT PLOT

THE PREFACE to the Reader.

HAVING for the moſt part perſued the very ſame Method *in writing this* Hiſtory, *that I uſed in that of* Oxfordſhire, *I ſhall have little occaſion further to enlarge my ſelf here, than to acquaint the* Reader *with thoſe few* alterations *he will find I have made, which I doubt not he will judg, ſo advantageous and reaſonable, that he will eaſily approve of what I have done, and excuſe me of all levity, and unſettledneſs of temper.*

The firſt and cheifeſt of which alterations, *he will meet with in the* Map; *where he will find many* Letters, *as well as* figures *ſet over the* Sheilds, *and theſe divided with lines drawn between them; the* figures *on the right hand each* Eſcocheon, *ſhewing what* Armes *belong to the* Houſes, *as they did in* Oxfordſhire; *and the* Letters *and* figures *on the left hand diviſion, ſhewing on the contrary what* Houſes, *belong to each* Armes: *ſo that whereas in* Oxfordſhire *upon the ſight of a* houſe, *one could eaſily find the* Armes *that belong'd to it; in this, upon ſight of any mans* Armes (*which are eaſily met with, being all placed in* alphabetical *order*) *one may as quickly find the* houſe *belonging to them; by ſeeking the ſame* Letters *and* figures *over the* Armes, *in the* Weſtern *and* Northern *Limbs of the* Map, *and finding where they meet in a right angle: the* houſes (*as well as* pariſhes *and* villages, *whereof there is an* Index, *alſo annext to this* Hiſtory) *being always within or ſomewhere at leſt touching the* lines *of the* ſquares, *wherever theſe* Ltters *and* figures *meet; that are ſet over, or after, thoſe* Armes, *or* pariſhes. *So that the* Reader *hereby tho never ſo great a ſtranger, may not only when he ſees a* Gentlemans *ſeat with* figures *annext, quickly find whoſe 'tis; but (which is of greater uſe) if he know but any perſons* name *in the* County, *he ſhall as quickly find his* Armes, *and whereabout he lives; as he may alſo any* Town, Pariſh, *or* village, *if he read any thing remarkable in this* Hiſtory, *found or done there, and would know whereabout it is ſituate in the* County.

Concerning the diſtances, *and* Scale *of* Miles *in the* Map, *they were taken after the ſame manner as in the* Hiſtory *of* Oxfordſhire, *and ſet off in the* Map *at the rate of two miles in an inch, as may be found upon compariſon of a* Rule *with the* Scale, *and of the*

Scale *with the* ſquares, *the mean or middle ſort of reputed* Miles *of this* County (*which I have followed here as I did in* Oxfordſhire) *containing for the moſt part about* 10 furlongs, *of which about* 55 *anſwer a* degree, *ſo that* $\frac{22}{100}$ *parts of a* mile *or* $\frac{2}{10}$ *and* $\frac{1}{5}$ *make a* minute; *according to which computation the* degrees *of* North Latitude *are divided into* minutes *on each ſide the* Map, *being cheifly made off from the Latitude of* Stafford, *which hath been obſerved to be ſituat in the* 52d minute *of the* 52d degree, proxime; *the* 53d degree *beginning at the* line *paſſing betwixt* Knighton *and* Radwood *on the Weſt ſide of the* Map, *and ſo through* Hanchurch, Trentham, Blurton, Huntley, Bradley, *and* Denſton: *by which diviſion 'tis eaſy to know to a* minute *of a* degree, *nay almoſt to a* ſecond, *in what latitude every* Town, Pariſh, Village, *and* Gentlemans houſe, *is ſeated.*

Which is all wherein the Map *differs from the former: and as for the* Hiſtory *it ſelf, I have ſo little reaſon to repent me of the* Method *I follow'd in that of* Oxfordſhire, *that I hope it differs not from it at all; unleſs in caſe of* meliority, *viz. in a greater variety of parallel* Hiſtories, *whereby the more unuſual ones, I met with in this* County, *have been all along confirm'd; and in the determination of more difficult* Queſtions; *whereby there is ſcarce a* Chapter *in this* Hiſtory *but has been render'd the more conſiderable, I mean in the* ſtating *of ſome one, or more of them: which I hope all men will find done with that accuracy, that they will accept of them in excuſe of the long delay, that has partly been made upon that account, in the publiſhing this* Hiſtory; *it having been really ſo far from a prejudice, that I think I can ſatisfy any reaſonable man, that this* Hiſtory *could not have poſſibly been, what (I hope) it is, in a much leſs time.*

I know 'twill be objected I publiſh't it in print, that this Hiſtory *ſhould be exſtant by ſuch a time preciſely, now long ſince paſt; which I here as publicly deny, as ever it 'twas aſſerted: for the truth whereof I appeal to the very papers ſubſcribed by the hands of the* Nobility *and* Gentry, *who encouraged the* work, *and if it be found otherwiſe then is here profeſs't, let me never enjoy the benefit of them; nor of any thing there mention'd, if I doe not litterally and with advantage, make all good I there promiſed: which I hope is as much as will be expected of me, by any judicious unprejudiced perſons, as for others, I am not concern'd to give them ſatisfaction.*

To the moſt Sacred Majeſtie

OF

JAMES the *SECOND*

Upon occaſion of Dr *PLOT'S*

preſenting to HIM

THE

NATURAL HISTORY

OF

STAFFORD-SHIRE

DEſcribe the *Land, Iſrael's* Commander ſaid
And the glad Artiſts ſtrait the word obey'd,
Here *Jordan* flows, and here *Aſphalte* ſtands,
See *Beth'lem's* fields, in which the ſkillfull hands
Let fall the Chain, and ſilent ſtop their pace,
Retain'd by 'th' mighty *Genius* of the place,
Some boding glimpſe of wonder they deſcry,
Rejoice and tremble, but they know not why:
You Sir are *Iſrael's King* and 'tis by You,
That we enjoy A happy *Canaan* too;
Not only land and ſea attend your State,
But all the *Muſes* on Your *triumphs* wait,
Our lives and fortunes by the lawes are due,
And gratitude directs our pen's to You,
Thus the great *Owner* of the Starrs and Skies
Takes ſome ſmall offering for a ſacrifice;

Theſe *Lands* of old did own the *Mercian* ſway,
And now rejoice Your *Scepter* to obey;
Trenta, and *Tama* raiſe their awfull Brow
Proud to become a preſent unto You,
As *Sacred* groves approaching Gods perceive,
And huſh'd in ſilence do attendance give;
So when *juſt Fate* conducts You to the throne,
Theſe *Aged Stream's* do thus the bleſſing owne.
Now JAMES's Eaſt *do's mighty beams diſperſe,*
A Genial warmth ſpreads thro' our Univerſe;
We feel the God----, ſee how wing'd Vict'ries *flie,*
And crou'd with laurells thro' the glitt'ring Skie;
When on our banks old Bards *did* Chant *his name,*
The liſt'ning waves danc'd to his dawne *of Fame;*
The joyfull murmurs haſtned to the deep,
Where waiting Tryphons Neptunes *court do keep;*
Here angry waves their heads do proſtrate lay
And lowly bow t'oth Maſter *of the ſea:*
Nigh Majeſty *do's bleſſe* Thames elder Stream,
Let us do ſomething may be told to Him.
Thus ſpake the *Aged Sires*, and *Nymphs* prepare,
In haſt to execute the pleaſing care;
Winter its cold and garments lay's aſide,
And *February* takes up *Aprils* pride,
Then *Staffords Fields* new youth and vigour gain
And ſeem to date their birth from JAMES's reigne,
Aquarius haſts theſe wonders to deſcry,
Produc'd (tis ſaid) by tears that flow from joy.
When great *Auguſtus* in his ſteddy hand,
The *Earth* and *Sea's* and *plenty* did command,
When *Janus* ſlept retir'd from civill rage,
And time ſeem'd to return the *golden age*,
When *cares* and *fears* and even *Trechery* fled
And hid in darkneſs its diſhoneſt head,

De-

Deſcribed Provinces * his Empire greet
And throw their plenty at his glorious feet,
The *Naked Rhine* and *Nitred Tigris* come,
And crou'd to bow unto *Victorious Rome*;
Parthia reſigns her *Spoils*, the fruitfull *Nile*
Preſents his *Palm's*, and thirſty *Crocodile*;
Octavian's triumphs do Your Temple's bleſs,
And in Your *Sunſhine* can our *Muſe* be leſs?
Reproachfull Rebell's vain attempts do ſhow
How much of Heaven's care belongs to You;
'Tis for Your ſake *Nature* reſignes her lawes
And *Warlike Muſes dare* aſſert your cauſe,
Soft as their ſhades, and as retir'd as Night,
They could in *Arms*, and *Rebell's blood* delight;
So do's chaſt *Pallas* for her Helmet call
And ſee's proud *Giants* by *Joves* thunder fall:
But now in *Albion's Feilds* rich *Laurells* grow,
Such as become *Sir* Your *Victorious Brow*,
Your *Learned Athens* brings ſuch gifts as theſe,
And at her *Altars* thanks You for her *Eaſe*.
Fair *Iſis* and ye conſcious *Groves* declare,
Whoſe *name* from ev'ry tunefull *Swain* you hear;
'Tis JAMES the *Second* fill's each *Echo's* voice,
And with his praiſe do's ev'ry ſhade rejoice,
Each *Science* feels new warmth, her wand'ring eyes
Beholds *Apollo* mount the *Eaſtern* skies;
Our *Author* do's not give but juſt reſtore
What *Your great Genius* had inſpir'd before:
Thus Pearls and Gold and all that men call great
Doe owe their birth to the *Suns ruling* Heat.
Nature, whoſe ſcorne do's common Mortals flie
Is proud to be the object of *Your Eye*,

* Æthicus *in his* Coſmography (*which was tranſcrib'd by* Oroſius *tells us the whole* Empire *was Survey'd and deſcrib'd in the Reigne of* Auguſtus, *and gives the names of* Thoſe, *who had the care of it, v.* Voſſ. *de* Lat. Hiſt. *l.* 1. *c.* 13. *&* Caſp. Barth. *l.* 14. *c.* 8.

She decks herſelf, ſets all her ſtores in view,
That ſhe may recommend herſelf to *You*;
Thus *Philips Son*, when in his arms he bore
A Conquer'd *World* and *weeping* wiſht for more,
Receives the Labours of the *Stagarite*,
And *Learning* fills the *Heroe*'s appetite:
Tho' *Sir* Your *Empire*, ſo expanded lie
That its vaſt bounds no ſetting *Suns* deſcry,
Yet do's it not to this its greatneſs owe,
'Tis therefore great, *becauſe poſſeſs'd by You.*

THO. LANE *M. A.*
and Fellow of
Mert. Coll.

To Dr. PLOT *on his* Natural Hiſtory *of* Staffordſhire.

1

WHAT ſtrange *Perverſity* is this of *Man*!
When twas a *Crime* to taſt th' *inlightning* Tree
He could not then his hand refrain,
None then ſo *inquiſitive*, ſo curious as *He*:
But now he'has liberty to try and know
God's whole *Plantation* below,
Now the *Angelic* fruit may be
Taſted by all whoſe arms can *reach* the *Tree*,
His now by *Licence* careles made,
The *Tree* Neglects to *Climb*, and *Sleeps* beneath the *Shade*.

2.

Such reſtive *Sedentary* Soules have they
Who could to *Patriarchal* years live on
Fix'd to *Hereditary* Clay,
And know no Climate but their own.
Contracted to their narrow Sphere
Reſt before *Knowledge* they prefer,
And of this *Globe* wherein they dwell
No more than of the *Heavenly* Orbs can tell,
As if by nature placed below
Not on this Earth to *dwell*, but to take *Root* and *grow*.

3

Dull Souls, why did great Nature take ſuch care
To write in ſuch a *Splendid Character*
If man the only thing below
That can't pretend her *hand* to know,
Her fair-writ *Volum* does deſpiſe,
And tho' deſign'd for *Wiſdom* won't be *Wiſe*?
Th' Allmighty getts no *Praiſe* from this *dull* kind,
The *Sun* was never Worſhip'd by the *Blind*.
Such Ignorance can ne'r *Devotion* raiſe,
They will want *Wiſdom*, and their *Maker Praiſe*.

4

They only can this *Tribute* duely yeild
Whoſe active ſpirits range abroad
And traverſe ore all Natures field
And view the great *Magnificence* of God.
They ſee the hidden wealth of Natures ſtore,
Fall down, and *Learnedly* adore.

But

But *they moſt* juſtly yet this tribute pay
Who dont *Contemplate* only, but *diſplay*,
Comment on Natures text, and to the ſenſe
Expoſe her latent excellence.
Who like the *Sun* not only *travel* ore
The world, but give it *light*, that others may adore.

5

In th' head of theſe *Heroic Few*
Our *Learned Author* firſt appears in view,
Whoſe ſearching *Genius* like the *Lamp* of day
Does the Earth's furniture diſplay,
Nor ſuffer's to ly buri'd and unknown
Natures rich *Talent*, or his *own*.
Drake and *Columbus* do in thee revive,
And we from thy Reſearch as much receive.
Thou art as great as they, for tis all one
New Worlds to *find*, or nicely to deſcribe the *known*.

6

On mighty *Hero*, our *whole* Iſle ſurvey,
Advance thy Standard, Conquer all the way.
Let nothing but the *Sea* controul
The progres of thy active Soul.
Act like a pious Courteous *Ghoſt*
And to mankind retrieve what's *loſt*.
With thy Victorious Charitable hand
Point out the *hidden Treaſures* of our Land.
Envy or *Ignorance* do what they will
Thou haſt a *bleſſing* from the *Muſes Hill*.
Great be thy ſpirit as thy *Work's* divine,
Shew thou thy *Maker's Praiſe*, We Poets will ſing *thine*.

J. NORRIS M. A.
and Fellow of
All Souls Coll.

Ad Authorem *Hiſtoriæ Naturalis Comitatus* Staffordiæ.

HÆſerunt alii tenui ſub cortice Mundi,
Vix ſtrinxit ſummas ſterilis *Geometria* glebas;
Intima ſcrutaris *Matris* penetralia *Terræ*,
Ignotoſque aperis, Populo mirante, receſſus.
Infans *Cæſareo* partu producitur aurum,
Lucinam ſupplente Stylo; Ferrumque ligonum
Impatiens, paret Calamo; Pennamque ſequutum,
Non magis ire lubens, quamvis *Magnete* procante
Geſtit in amplexus; vel ſi quando evocat ardens
Mulciber ad Fulmen *Siculi* fornacibus antri.
Ipſum etiam Fulmen ſub *Te* Vibrante, priori
Exuitur Flamma: Sic mittit tela ſecundo
Jupiter augurio; liquidum ſic Æthera inaurat
Dum caſtigato *Semelen* Uxorius igne
Quærit, & innocuos *Baccho* inſpirare calores.
Cætera, quæ volitant ſuper Aera corpora, nobis
Naturam abſolvens, plenè *Tua Pagina* miſcet.
Roſcida *Virgilii* non ſic depingitur *Iris*,
Quando averſa comam reſecat morientis *Eliſæ*,
Quamvis *Mille trahens varios à ſole colores.*
Hoc cœlo nitidus majore *Parhelius* orbe
Splendet, nec ſolum demonſtrat *Apollinis* ora,
Te quoque reflectit, geminata luce ſuperbus,
Quam bene ſic junctos oſtendit in Æthere vultus.
Sed quæ *Te* dignè celebrabit *Muſa*, relinquat
Parnaſſi exhauſtos fatices, ſiccumque *Helicona.*
Æternas aperis Lymphas, hoc Fonte *Camœna*
Non Labra, at Veſtra ſe totam proluat Urna.
Obliturque maris, veteriſque oblitus Amoris,
Phœbus in hoc aliam venetur *Tethya* Ponto.
Hic Pater *Oceanus* vaſtas diſpenſat aquarum
Juſtus opes, *Nymphis* ferri ſua dona per orbem
Hinc jubet; huc iterum deſertis *Naiades* antris
Cum redeunt, liquidæ referunt diſpendia Gazæ;
Humoris quantum cogit frondeſcere Plantas;
Quanto *Flora* ſui variavit ſidera cœli;
Quicquid & in ſolidas juſſit lapideſcere quercus.
Quod ſupereſt, nec plus *Cybele* ſatiata requirit,
Per plures Rivos, per Flumina mille reverteus,
Maternos repetit blando cum murmure Fluctus.
Quam ſibi *Scriptorem* Fœlix *Staffordia* plaudit
Adjecta *Oxonio*! quid plus vel vota rogabunt,
Ni poſtquam Veſtra luſtrata *Britannia* curâ eſt,
Mens Majora ſorans, totum percurreret Orbem,
Quaque patet *Natura*, extenderet impigra Regnum.

S. WELSTED.

B

DIRECTIONS

For a right underſtanding of the *Map*.

1. Let the *Reader* take notice that the *Armes* of the *Nobility* and *Gentry*, and the *figures* over the right hand of each *Sheild*, are put according to the *Alphabetical* order of the *names*, and *numeral* order of the *figures*, except when the Perſons live in *Lichfield* or *Stafford*, in which caſe, thoſe of *Lichfield* are markt with an *, and thoſe of *Stafford* with ⊞.

2. That the *Armes* on the top of the *Map* are to be reckoned firſt; thoſe on the right hand next; thoſe on the left hand in the third place; thoſe on the bottom laſt.

3. That every *Nobleman* and *Gentlemans* Seat in the *Country* has a certain number annext to it, which being eaſily found by the numeral order of the *figures* over the right hand diviſion of ſome *Sheild* of *Armes* in the *Limb* of the *Map*, ſhews the *Armes* of the *Perſon* whoſe *Seat* it is, with his name & quality under them.

4. That as the *figures* over the right hand of the *Eſcocheons* ſhew what *Armes* belong to the *Houſes*: So the *Letters* and *figures* over the left hand diviſion ſhew what *Houſes* belong to the *Armes*, by finding the ſame *Letters* and *figures* near the *Weſtern* and *Northern Limbs* of the *Map*, and where they meet in a *right angle*; The *Houſes* (as well as *Pariſhes* and *Villages* above mention'd) being always within, or ſomewhere touching the lines of the *ſquare* where theſe *Letters* and *figures* meet, that are ſet over or after thoſe *Armes* or *Pariſhes*. So that wherever the *Reader* (tho' never ſo great a *ſtranger*) ſees a *houſe* with *figures* annext, he can quickly find whoſe 'tis: Or if he know but any perſons *name* in the *County*, he ſhall as quickly find his *Armes*, and whereabout in the *County* his houſe is ſituate.

A

Abbots-Caſtle t 5
Acton b 5
Acton-Truſſel o 8
Adbaſton l 3
Admaſton m 11
Adſell m 11
Agerſley m 12
Alderſley r 7
Aldrich r 11
Almore n 5
Alſtonfield e 13
Alrewas o 13
Alrewas hay o 13
Alſton n 6
Alveton h 11
Amblecot w 7
Amerton m 9
Ammington k 2
Anſlow m 14
Apedale g 5
Apeton n 6
Aqualat n 3
Arley x 4
Arley-ſtreet x 4
Armitage o 11
Aſhenbrook p 12
Aſhenhurſt e 10
Aſhes w 5
Aſhley i 3
Aſhmers r 8
Aſpley k 5
Aſpley q 7
Aſton b 3
Aſton k 7
Aſton m 7
L. Aſton r 12
Audley f 4
Avis-Hieron m 13
Auſcot t 11

B

Badiley f 8
Badnall k 6
Bagnall f 9
Balterley f 3
Bancroft n 12
Barleſton i 7
Barnehurſt r 7
G. Barr s 10
Barbeacon s 11
Barton n 6
Barton o 14
Basford f 9
Baſſets pole s 13
Baſwich m 8
Baudy ſlade o 10
Beamhurſt k 11
Beaudeſart p 11
Bednal n 8
Beech i 6
Belmot m 14
Bemerſley green f 7
Bently s 9
Beresford e 13
Beſcot n 4
Beſcot s 10
BETLEY g 4
Bickford o 6
Biddulf d 7
Biddulf Hall d 7
Bignal-Hill f 5
Billbrook r 6
Billington n 6
Bilſton s 8
Birchen-bough a 10
Biſhops-wood q 5
Biſhton n 10
Biterſcot r 14
Biterton p 5
Bitham o 7
Blackladyes q 6
Blaklands u 5
Blakeley k 6
Blazing-ſtar h 11
Blithe-Br. i 9
Blithe-Br l 11
Blithefield m 10
Blithebury n 11
Blomesbury o 4
Blore g 13
Blore k 2
Blore-heath k 2 3
Blore-pipe l 3
G. Bloxwich r 9
L. Bloxwich r 9
Blundells u 6
Bluntsgreen k 11
Blurton h 7
Blymhill p 5
Bobbington u 5
Bold m 10
Bonehill s 14
Boothen h 7
Bothom f 9
Botlow g 7
Bourne s 11
Bowers k 5
Bradeley n 6
Bardley h 11
Bradley t 8
N. Bradnup e 10
O. Bradnup d 10
Bradwall f 6
Bramſhall k 11
Braſnill m 6
Braunſton n 15
Brereton o 11
Brewood p 6
Brickley Logd m 14
G. Bridgford l 7
L. Bridgford l 7
Brierley t 8
Brinepits m 9
Brineton o 5
Brinsford q 7
Britwell w 7
Broadmeddow c 12
Brockmeer u 7
Brockton n 9
Bromley u 7
Bromley Bagots m 11
Bromley Gerards k 4
Bromley Hurſt n 12
Bromley Kings o 12
Bromly N. Wood m 12
Bromley O. Wood m 12
Bromley Pagets m 11
Bromwich-heath u 10
Brookend i 12
Broome x 7
The Brough i 4
Brough-Hall m 5
Broughton k 3
Brownedg e 7
Brown hill q 10
Browns-green t 10
Bucknall g 8
Buddy Lees f 3
Burch-hills s 9
Burlauton p 4
Burnell green r 4
Burnt wood p 11
Burſlem f 7
Burſton l 8
Burton n 7
BURTON upon Trent n 5
Buſhbury r 8
Buſhens m 15
Buttermilk hill l 12
Butterton e 11
Butterton h 5
Butterton n 7
Byanna l 5

C

Calcot hill x 8
Caldmore s 10
Callingſwood n 14
Callowhill m 11
Camphills h 4
Cannall r 13
Cannock p 9
Caraway-head r 13
Caſtern f 13
Caſtle croft h 10
Caverſwall h 9
Cauldon g 12
Caulton g 12
Charley p 11
Charnes k 4
Chartley l 10
Chaterley f 6
Chatkill k 4
G. Chatwall o 4
L. Chatwall o 4
Chawton on the hill
Chebſey l 6
Checkhill u 6
Checkley i 10
CHEDLE h 10
Chedle-eaves h 10
Chedle-grange h 10
Chedleton e 9
Chell f 7
Cheſlin-hay p 9
Cheſterfield q 12
Cheſterton g 5
Chillington q 6
Chorlton z 5
Church-eyton o 6
Clanford gr. m 6
Clayton h 6
N. Clent x 7
V. Clent x 8
Clieve s 5
Clifton Camvill p 15
Clough-Hall e 6
Coats k 6
Cockn age i 8
Codſall r 6
Codſall Wood q 6
Coldmeeſe k 6
Cold-norton l 6
Colſeley t 8
Colton n 11
Colwich h 13
Colwich n 10
Combach x 8
Combridg i 12
Compton s 7
L. Compton w 5
U. Compton w 5
Congreve o 7
Copenal n 7
Copley s 5
Coton k 9
Coton l 13
Coton n 5
Coton q 14
Coton Clanford m 6
Coton end n 5
Cotton g 11
Cotwall

Cotwall t 7
Cotwallton k 8
Coven q 7
Counſlow h 11
Cowley n 5
Crakeford q 7
Crakemarſh k 12
Creſwell i 9
Creſwell m 7
Crighton k 11
Cronckwall g 7
Croxden i 11
Croxton k 4
Cumberford q 14
Cunſall g 9
Curborough p 12

D

Darlaſton k 7
Darlaſton s 9
Daw-end r 10
Darneſdale n 6
De la Creſs d 9
Delves s 10
Denſton h 12
Derrington m 7
Dilhorn h 9
Dimſdale g 6
Dodſley k 10
Dove-head b 11
Doxy m 7
Draycot i 9
Draycot l 13
Drayton o 7
Drayton Baſſet s 14
Drineton m 10
Dudley Caſt. u 8
Dunſley w 6
Dunſtal n 14
Dunſtal r 14
Dunſton n 7

E

Eardley f 5
Eaves g 11
ECCLESHALL l 5
Ecton-hill e 12
Edgiall q 11
Edingall p 14
Eland-Lodg m 13
Elford p 14
Elford Low p 14
L. Elkſton e 11
U. Elkſton d 11
Ellaſton h 13
Ellenhall l 6
Ellerton grange m 2
Elmhurſt p 12
Endon e 8
Enfield u 5
Engleton p 7
Enſon l 8
Eſſington r 8
Eſſington-wood q 9
Etingſall r 7

F

Fairfield head c 11
Fairoak k 3
Fair-Oake 9
Fald m 14
Farewell p 11
Farley h 11
Faſeley r 14
G. Fenton h 7
L. Fenton g 7
Fernyford d 11
Ferny-hill e 10
Fetherſton q 8
Field l 10
Finſpot-hill t 9
Fiſherwick p 13
Flaſh b 11
Flaſhbrook m 3
Fold d 10
N. Fold k 11
O. Fold k 11
Ford f 11
Ford green f 7
Ford houſes r 7
Forge o 10
Forge r 13
Forge w 8
Forge houſes q 7
Forton n 3
Foſsbrook i 9
Foterley r 12
Four Croſſes p 8
Fox f 11
Freford q 12
Frenchmansſtreet x 4
Frodley p 13
Frodſwell k 9
Frog hall f 10
Frog hall q 10
Fulford i 9

G

Garſhall k 9
Garſton g 11
Gaſtilea i 4
Gayton l 9
Gentleſhaw p 11
Gnoſall n 5
Golden hill f 6
Goldfich b 10
Goldthorn s 7
Goſcot r 10
Goſpel-end t 7
N. Gournall u 7
O. Gournal t 7
Graton e 8
Gratwich l 11
Gratwood l 4
Grindon f 12
Grinley l 10
Gritbridg t 9
Grit green u 9
Grityate i 11
Grubbers aſh g 5
Gun c 9
Gunſton q 6

H

Hackley t 9
Hafcot w 6
Hales k 2
Halfhead l 6
Hall a wood f 4
Hammerend f 4
Hammerwich q 11
Hamſtead t 10
Hanbury m 13
Hanchurch k 6
Hanford h 7
Hanley-green g 7
Hanſacre o 12
Hanſworth u 11
Hanton p 15
Harborn w 10
Harding r 9
Hardingsbooth c 11
Hardwick k 8
Harlaſton p 14
Hartley-green l 9
Haſelour p 14
Hatherton p 8
Hatton i 5
Hatton q 7
Haughton n 6
Haukbach y 4
L. Hay r 12
Hay-end n 12
Heath hill o 4
Heath houſes s 8
Heatley m 11
Heaton e 8
Hedgford p 9
Heracles d 9
Heydon Croſs w 9
Heyley Caſt. g 4
Heylins Park n 14
G. Heywood m 10
L. Heywood n 10
Heywood Park n 9
Hickſon m 9
High-hall p 5
Hilcot l 5
Hilderſton k 8
The Hill s 5
Hill-houſe k 3
Hilton o 4
Hilton q 8
Hilton Ab. g 8
Himley u 7
Hoggs-hall q 14
Holbeach u 7
Holeſclough c 11
Hollies n 5
Hollies w 5
Hollingbury-hall l 12
Hollington i 11
Holloway w 7
N. Holme d 10
N. Holme g 8
M. Holme c 10
O. Holme c 10
O. Holme h 8
N. Hoo u 6
Hope f 13
Hoppas q 14
Hoppas-hay q 13
Hopton m 8
Hopton heath m 8
Hore-croſs m 13
Horninglow m 15
Horſebrook p 6
Horſeley l 4
Horſeley t 9
Horton d 8
Horton hay d 8
Hound hill l 13
Hudlesford p 13
Huntington o 8
Huntley h 10
Hyde n 7
Hyde q 6
Hyde w 6
Hynts r 13

I

Iberty u 9
Ilam f 13
Ingeſtre m 9
Johnſon l 5
Ipſton f 10
Ivelley x 6
Ivetſey p 5

K

Keel g 5
Keel-hall h 5
Kidcrow e 6
Kiddimoore gr. q 6
Kinfare w 6
Kingſley g 12
Kingſtanding t 11
Kingſton l 11
Kingſwinford u 7
Kingſwood r 5
Kinnerſton p 7
Knaves-Caſtle q 10
Knenhall i 8
Knightley m 5
Knightley Park m 5
Knighton i 3
Knighton l 3
Knoll-end f 4
Knutton g 6
Knyperſley e 7

L

Landy-wood q 9
Lapley p 6
Laynton m 4
Lea m 10
Leacroft p 9
Lea lane n 11
Leaton u 5
LEEK d 9
Lees g 10
Lees i 9
Lees hill l 11
Leigh k 10
Levedale o 7
LICHFIELD p 12
Lindon t 10
Linedon w 5
Linehill o 7
Lockwood g 10
Long burch q 6
Longcroft n 13
Longdon o 11
Longnor c 12
Longnor o 6
Longſdon d 9
Longton h 7
Low c 12
N. Loxley l 11
O. Loxley l 11
Ludchurch b 9
Lyn q 11
Lyſwis p 12

M

G. Madeley h 4
L. Madeley g 4
Madely Manor h 4
Marbrook c 9
Marchington l 13
Marchington wood-lands l 12
Marſton l 8
Marſton o 5
Mathfield h 13
N. Mathfield h 13
U. Mathfield h 13
Mayford k 7
Mear h 8
Mear i 4
Mearlane-end h 8
Meere u 5
Meerton n 3
Merrydale s 7
Middleton gr. k 10
Milldale f 13
Millgreen m 11
Millgreen r 11
Millmeeſe k 5
Millton f 8
Millwich k 9
Mitton o 6
Moderſall i 8
Mole-cop d 7
Monmoore gr. s 8
G. Moore s 5
L. Moore s 5
Moore-end n 5
Moore houſe e 9
Morſe u 5
Morton l 13
Morton m 10
Morton o 4
Moſeley q 8
Moſelie f 10
Muchall s 7
Muckleſtone i 3
Murry n 13

N

Narrowdale e 13
Naſhend x 4
Nechels s 8
Needwood forr. m 12
NEWCASTLE under Lyme g 6
Newbold lands n 14
Newborough m 13
Newhall g 3
New Inn u 10
New-land n 11
Newton m 10
Nobot k 11
Norbury m 4
Normacot h 8
Northwood h 13
Norton p 9
Norton it'h Moors s 8
Nurton s 5

O

The Oake t 9
Oakley i 2
Oakley p 14
Oaken r 6
Shire Oakes r 11
Offley-Biſhops l 4
Offley-high l 4
Okeover g 14
Okeymoore h 11
Oldfallings r 8
Old-hill u 9
On high o 5
On Little b 5
Oncot e 11
Oncot m 6
Onneley h 3
Orgrave o 13
Orſlow o 5
Otherton o 7
Overend o 11
Overton c 7
Overton t 6
Oulton i 7
Oulton s 5
L. Oulton n 4
V. Oulton m 4
Oxley r 7

P

Packington q 13
Pantons in the dale g 12
Park-hall h 8
Patelhull r 5
Patingham s 5
Paynly-hill k 11
Paynſley i 10
Peackſtones h 11
Pelſall r 10
N. Pen t 6
O. Pen t 7
Penford r 7
Penkhull h 6
Penkridge o 7
Perſall l 5
Pillaton p 8
G. Pipe h 11
L. Pipe p 11
Pipe hill q 12
Plardwick n 5
Pleck s 9
Podmer i 4
Portway u 9
Preſton o 7
Preſtwood h 12
Preſtwood w 6
Purton s 6
Pury-barr t 11
Pury-Hall t 11
Pyre-hill l 7

Q

Quickſill h 12
Queiſlet t 11

R

Rednor-lane n 4
Radwood h 3
Ramſor h 12
Ranſall g 3
Ranton m 6
Ranton Ab. edmoor m 5
Red-ſtreet p 10
N. Rewle f 5
O. Rewle n 5
Ricarſcot n 5
Ridware Hamſtall n 12
Ridware Hill o 11
Ridware Mavesyn o 11
Ridware pipe o 12
Roach-grange c 10
Roceſter i 12
Rodbaſton p 7
Rolleſtone m 15
Rouden lanes r 8
Rough coat h 8
Rounall f 9
Rouſe-end p 11
Rowley u 9
Rowley m 8
Rudge k 3
Rudyerd d 9
RUGELEY n 10
Ruſhall r 10
Ruſhton James c 8
Ruſhton Spencer c 8

S

Salt l 8
Sandborough n 12
Sandon l 8
L. Sandon l 8
Sandwel t 10
G. Sarden p 8
L. Sarden q 8
Scierſcot q 14
Seaſdon t 6
Seawall r 8
Sedgley t 7
Seighford m 6
Severley-green i 9
Shallowford l 6
Shareſhall q 8
Sharpcliff f 10
Shatterford x 4
Sheabridg h 5
Shebben poole m 3
Sheen d 12
Shelfield r 10
Selton g 7
Shelton under Harley i 5
Shenſton r 12
Sherriff Hales p 3
Shire-heads a 11
Shire lanes u 10
Shobnall w 15
Shredicot o 6
Shutborough n 9
Shutland-head h 5
Shuttend u 7
Slindon k 5
Small riſe k 8
Smallwood-hall l 12
Smethwick u 10
Snails green t 10
Sneyd green f 7
Summerford q 7
Span h 11
Spot-grange k 8
Spout t 10
STAFFORD m 8
Stafford-Caſt. m 7
Stallbrook m 7
Stallington i 9
Standon k 5
Stanley f 8
Stanſop f 13
Stanton h 13
Statfold q 15
Stitchbrook p 12
Stile-Cop o 10
Stoke k 8
Stoke ſuper Trent g 7
N. Stonall r 11
O. Stonall q 11
STONE k 7
Stony low e 8
Stourton w 6
Stourton Caſt. w 6
Stow m 10
Stramſhall k 11
Streethey p 13
Streeton m 15
Stretton p 6
Stubby lane l 13
Stubwood i 12
G. Sugnall k 4
L. Sugnall k 4
Sutton m 3
Swindon u 6
Swinerton k 6
Swinfen q 12
Swinſcoe g 13
Swinſhead i 5
Swithamley b 9

T

Talk e 5
Tamhorn q 14
TAMWORTH r 14
Tatenhill n 14
Tatterſhill s 5
Teddeſley head o 9
N. Tene i 10
O. Tene i 10
Terley Caſt. k 2
Tereſworth d 10
Tettenhall r 7
Thatchmoore p 13
Thickbroome r 12
St. Thomas m 8
Thorncliff d 10
Thorns q 11
Thorny-lanes m 12
Thorny Lee c 9
Thorp Conſtantine p 15
Throwley f 13
Thurſfield alias New Chappel e 7
Tipton t 8
Tipton green t 8
Tittenſor i 7
Tixall m 9
Tixall heath m 8
Tole-end t 9
Totmonſlow i 10
Tower hill t 11
N. Town o 12
Treaſle t 6
Trentham h 6
Treſcot s 6
Tubney o 12
Tackhill u 4
Tunſtall f 6
Tunſtall l 4
Tunſtall m 11
Tunſtall r 7
Tutbury l 15
Tutbury Caſt. l 14

U

UTTOXATER k 12

W

Wall q 12
Wall-grange e 9
WALSALL s 10
Walſall-wood r 10
Walton k 7
Walton l 6
Walton n 8
Walton-grange o 4
Warſlow d 12
Warton m 3
Water-eaton p 7
Waterfall f 12
Wednesbury s 9
Wednesfield r 8
Weeford r 13
Weeping-croſs n 8
Weetmoore m 15
The Werges r 6
Weſtbromwich t 10
Weſton i 5
Weſton l 9
Weſton-coyney h 8
Weſton Jones w 3
Weſton under Lyzard p 5
Weſtonwood m 4
Weſtwood d 9
Wetley-moore g 11
Wetton e 12
Wetwood k 4
Weverhills g 12
Wharnford b 10
Wheaton Aſton p 6
Whichnor o 14
Whiſton g 11
Whiſton o 6
Whitchurſt g 9
Whitgrave l 7
White-hough f 10
Whitmore h 5
Whitnell end w 5
Whittington q 13
Whittington w 6
Wigginſtall d 12
Wightwick s 6
Wiginton q 14
Wildmoore hollies p 10
Willbrighton n 4
Willeford p 13
Willenhall s 9
Willingſworth t 9
Willowbridg i 3
Winington i 3
Winkle-hill f 11
Winyates c 10
Withington k 10
Wollaſton o 6
Wollgaſton o 8
Wolſeley n 10
Wolſtanton g 6
WOLVERHAMTON s 7
Womborn t 7
Wood-eaton o 5
Wood-end m 13
Wood-end r 12
Wood end s 10
Wood-end t 7
Wood-houſe t 7
Wood-houſes g 13
Wood-houſes k 8
Wood-houſes m 14
Wood-houſes n 13
Wood-houſes s 5
Wood-mill n 13
Woodſatton t 7
Woodſeaves l 4
Woodſeaves x 4
Wooton h 12
G. Worley p 9
L. Worley q 10
Worſley w 7
Wotton l 5
Wrine-hill g 4
Wrine-hill-hall g 4
Wrotteſley r 6

Y

Yarlet l 7
Yarnfield k 6
Yoxal n 13

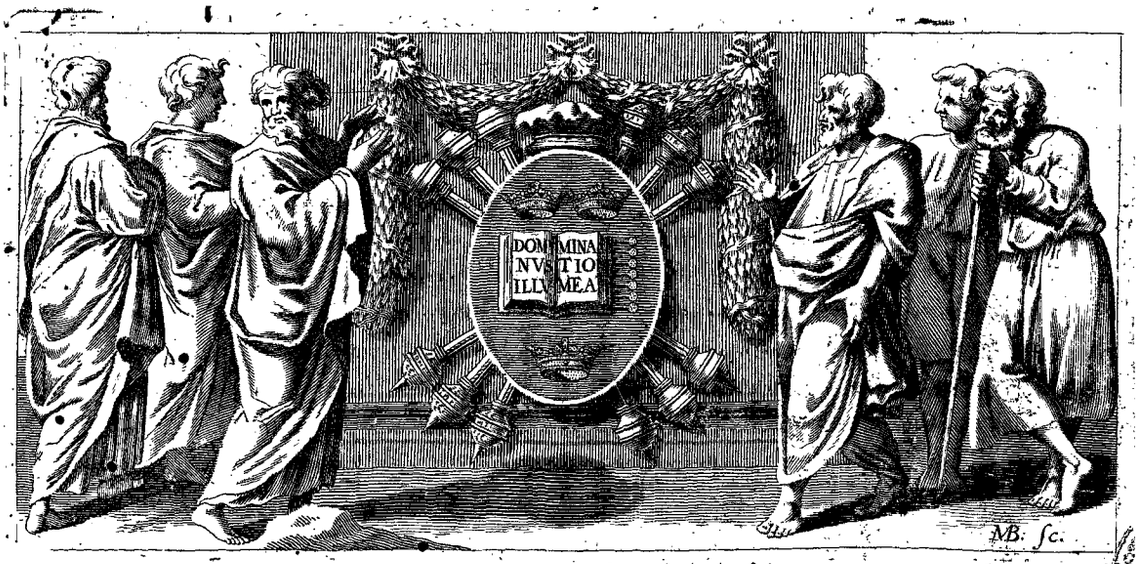
Armes omitted, to be placed next the Map.

225. k.10. 226. r.7. 227. m.7. 228. m.8. 229. q.6. 230. q.13. 231. g.6. 232. r.7.

Ashenhurst. Cresswell. Crompton. Drakeford. Fowke. Gage Esq. Keeling. Langley.

233. n.5. 234. u.5 ⊞. m.8. 235. r.9. 236 m.15. 237. m.11.

Moseley. Nabbs. Parker. Powell. Warburton



THE NATURAL HISTORY OF Staffordſhire.

CHAP. I.

Of the Heavens and Air.

HAVING already in the Introduction to my *Natural Hiſtory* of *Oxford-ſhire* preſcribed my ſelf a *Method*, whereof I have no reaſon to repent me[a], I ſhall forbear all further *Preface* to this, than to acquaint the *Reader* in ſhort, that I intend the ſame again, not only in the *Whole*, but in the particular *Chapters*; and that I ſhall make all *Relations* (as formerly) in a plain familiar Stile, without the Ornaments of *Rhetorick*, leaſt the matter be obſcured by too much *illuſtration*; and with all the imaginable brevity that *perſpicuity* will bear; it being an indiſputable truth, that an *Author* by enlargeing to the utmoſt compaſs of his *Theme*, ſometimes advances his *Papers* to ſo diſproportionable a Bulk, that by writing too much, He had almoſt as good have writ nothing, Experience convincing us that *voluminous Works* have but few *Buyers*, and much fewer *Readers*.

[a] *Nat. Hiſt. of Oxford-ſh.* Chap. 1. §. §. 1, 2, 3.

2. Upon this account too, I have induſtriouſly ſet my ſelf this irrepealable Law, to remain inviolable in all other *Hiſtories* I ſhall write of this kind: That whatever I meet with in one *County*, already deſcribed in another, ſhall be only juſt mentioned as found, ſeen, or heard of, at ſuch or ſuch a place, always referring the *Reader* for the Deſcription, or Philoſophical account of it, to the former *Book*; unleſs the thing differ in ſome conſiderable circumſtance, or be but imperfectly deſcribed: thus whatever Curioſity either of *Nature* or *Art* (be it of the greateſt moment) that I have met with in *Stafford-ſhire*, if ſufficiently deſcribed already in *Oxford-ſhire*, ſhall be but barely mention'd here, reference being made to the *Chapter* and *Section* of that *Hiſtory*, where it has been diſcourſed on before: Nor need I doubt but the *Stafford-ſhire Nobility* and *Gentry* (Learning and Ingenuity being ſo frequent amongſt them) will allow me this privilege, without the leaſt imputation of detracting from their Country, ſince hereby I avoid all vain repetitions, and yet ſhall amply repay them again, if I live to write the *Hiſtory* of any other *County*, by referring in like manner as much or more to theirs; which 'tis manifold odds, but I ſhall certainly do, if I ever meet hereafter with the like *noble encouragement*, that they have ſo plentifully and generouſly afforded me.

3. To come then forthwith to the *ſubject* in hand, the *Natural Hiſtory* of the *County* of *Stafford*; the firſt thing I met with relating to the *Heavens*, and one of the firſt too that I heard of after I ſet to work in earneſt, was a pretty *rural obſervation*, of late years made by ſome of the *Inhabitants* of the Town of *Leek* in the *Moorelands*, of the ſetting of the *Sun* in the Summer *Solſtice*, near a Hill called the *Cloud*, about ſix miles diſtant, in the confines of *Stafford-ſhire* and *Cheſhire*; which appearing almoſt perpendicular on the *Northern* ſide, to ſuch perſons as are ſtanding in *Leek* Church-yard, the *Sun* ſeems ſo nicely at that time of year to cut the Edg of it at ſetting, as in *Tab.* 1. *Fig.* 1, that notwithſtanding what is taught by *Aſtronomers*, that the *Sun* whilſt it occupies that *Cardinal* point, appears *Stationary* for ſome time without giving any ſenſible increaſe or decreaſe to the length of the days; they can plainly perceive by the help of this *Hill*, that no two days are equal, but that there is a ſenſible difference every day: juſt as at the Temple of *Tentiris* in *Egypt* where there are as many Windows as days in the year, ſo placed, that the *Sun* riſing in a different degree of the *Zodiac* every day, it alſo ſends in its beams every day into a diſtinct Window from the day before[b].

[b] *H. Vanſlebius's* preſent State of *Egypt* chap. *ult. p.* 246.

For when the *Sun* comes near the *Solſtice*, the whole disk of it at firſt ſets behind the *Hill*, after a while the *Northern Limb* firſt appears, and ſo every night gradually more, till at length the whole *Diameter* comes to ſet *Northward* of it, for about three nights; but the middle night of the three, very ſenſibly more remote, than the former or the following, when beginning its receſs from the *Tropic*, it ſtill continues more and more to be hidden every night, till at length it deſcends quite behind it again.

4. Which *Phænomenon* though worth notice for its own ſake alone, yet might be render'd of much more uſe to the *Publick*, would the *Curious* that for the moſt part reſide thereabout, make *annual* and more ſtrict obſervations for the future by ſuitable *Inſtruments*, noteing every year the day preciſely, that the *Limb* of the *Sun* firſt cuts the edge of the *Hill*, and how many *Digits* or parts of *Digits*, of its own *Diameter*, it daily advances; alſo carefully noteing the neareſt diſtance 'twixt the edge of the *Hill*, and the *Rim* of the *Sun*, on the very day of the *Solſtice*, and laſtly the *Mean* between both: For by this means in time the *Suns* greateſt *Northern Declination* (which *Aſtronomers* ſay is leſs now than heretofore [c]) may be gradually adjuſted, and at length perhaps limited; Which I take to be an *Experiment* of ſo valuable a Conſideration, that I cannot but recommend it to my worthy friends the Worſhipful *Thomas Rudyerd* of *Rudyerd* Eſquire, M^r. *Parker*, and M^r. *Thomas Gent*; at leaſt that they would take care in ſome one year or other, when there is leaſt of *Refraction* upon account of the *Atmoſphere*, from ſome fixt point, ſo to adjuſt the diſtance betwixt the *Hill* and the *Sun* on the day of the *Solſtice* by an *Azimuthal Quadrant*, the new *Micrometer*, or ſome other agreeable Inſtrument, that future *Ages* however (if it cannot be in this) may ſee the difference.

5. Next the true and genuine, the Spurious or *Mock-Suns* that have been frequent in this *County* fall under conſideration, ſo frequent indeed (their cauſes already having been hinted in *Oxford-ſhire* [d]) that they ſcarce deſerve any; at moſt but bare mentioning: Such were the *Parelia* ſeen about twenty years ſince, by that great Example of *Valour* and *Fidelity* to his Prince, the Worſhipful *Collonel John Lane* and Mr. *Perſehowſe* of *Nether Gournall*; as they were walking between *Bentley* and *Willingſworth* (near *Darlaſton*) they appear'd in the *Weſt*, the *Sun* not above half an hour high ſtanding in a line *parallel* to the *Horizon*; and ſo did the *Mock-Sun* ſeen *July* 12. 1678. by the virtuous,

[c] *Joh. Bapt. Ricciol. Almageſtum Nov.* Lib. 3. Chap. 27. [d] *Nat. Hiſt. of Oxford-ſh.* Chap. 1. §. 5.

learned, and moſt ingenious *Gentleman* the Worſhipful *Walter Chetwynd* of *Ingeſtre* Eſquire, and Mr. *Fiſher Dilke* as they were walking on *Hopton* Heath. I was alſo informed by the ſame ingenious *Gentleman* Mr. *Fiſher Dilke* that on *Auguſt* the 28. 1679. He ſaw much ſuch another at or near *Haſelour*, neither of them having any Circle of light about them, or paſſing through the *Diſks* of *Mock* or true *Sun*, as is uſual, and both of them of ſo ſtrong and even a light, as hard to be diſtinguiſhed from the true *Sun*; only differing in this, that the firſt *Mock-Sun* appear'd about ten degrees to the *South* of the true one, and the latter to the *North*, but both of them in *Almicantars* or lines parallel to the *Horizon*.

6. And thus it ſeems they generally do, *nec ſupra ipſum nec infra*, ſays *Pliny*, *ſed ex obliquo*, neither above nor beneath the true *Sun*, but on either ſide; *nec noctu, ſed aut Oriente aut Occidente*[e], nor in the night ſeaſon, but when the *Sun* either riſeth or ſetteth, only once indeed he ſays in the ſame *Chapter*, that ſuch were reported to have been ſeen at *noon day* in *Boſphoro*[f]; and we are informed by the learned *Monſieur Hevelius* that near *Marienburg* in *Boruſſia Feb.* 5. 1674. He ſaw in the Evening the true *Sun* ſending forth very long reddiſh rays tapering gradually upward for 40 or 50 degrees toward the *Zenith*, and under it a *Mock-Sun* nearer to the *Horizon* of the ſame bigneſs (to ſenſe) with the true one, and in the ſame *Vertical* or *Azimuth* line[g].

7. Which though inſtances amongſt *Authors* ſo very rare, that we hear of but theſe two, now in ſixteen hundred years, yet one of them ſeems to have happened ſo very lately as *Dec.* 4. 1680. and to have been carefully obſerved, by my worthy, learned, and moſt ingenious friend, the Worſhipful *Francis Wolferſtan* of *Statfold* Eſquire, who riding between his own houſe and *Clifton Campvill*, as near as he could gueſs about twelve at noon, His *Man* firſt eſpyed ſomewhat unuſual in the *Heavens*, which not without amazement quickly ſhewing to his *Maſter*, He preſently perceived about the *Azimuth* or hour line of two (*viz.* two hours before the *Sun* or thereabout) a more than ordinary *brightneſs* of the ſame altitude with the *Sun*, which through the tenuious clouds that were paſſing over it, appear'd for a while not unlike another *Sun*, the true *Sun* ſhining at the ſame time.

8. But immediately after (the clouds paſſing away) there appeared in the ſame place the uſual colours of the *Solar Rainbow*, ſomewhat of an *oval* form, with ſmaller beams iſſuing from

[e] *Nat. Hiſt.* Lib. 2. Chap. 31. [f] *Ibidem.* [g] *Philoſ. Tranſact.* Numb. 102. p. 26. *how this may be, ſee Des Cartes Meteororum* Lib. 10. §. 5.

each

each ſide, and a larger white ray or ſtream of light darting downward from the bottom, as in *Tab.* 1. *fig.* 2. moſt remarkably differing from the *Phænomenon* of *Hevelius*, the ray of light in his iſſuing from the true *Sun* and tending upward, this from the *Mock-Sun* (for I can call it no leſs) and tending downward: Its colours whilſt it continued in that form were ſtrong and beautiful, but languiſhing by degrees, it became at length a ſmall portion or *Segment* of a *Solar Iris* as in *Tab.* 1. *fig.* 3. which becauſe ſo notoriouſly imperfect, and thus irregularly poſited in the Heavens, may deſerve perhaps as much or more of our admiration, as was given the imperfect *Iris* drawn by the great Maſter *Ariſtides*[h], beyond what would have been afforded to the moſt perfect one he could have painted: not only becauſe appearing in the *South* contrary to the known rule amongſt the *Meteorologiſts, nullæ ad Auſtrum pinguntur Irides*, but for overthrowing in a manner the whole *doctrine* of *Rainbows*. As firſt that the *Center* of the *Sun*, the *Rainbow*, and the *Eye* of the *Beholder*, muſt be in one right line; ſecondly the *Spectator* between the *Sun* and the *Rainbow*; and thirdly the *horns* or *flanks* of the *Bow* always terminating in the *Horizon*: whereas this, being but 30 degrees from the *Sun*, the *Concave* toward it, and the *Convex* Weſtward from it, and conſequentially the *Cornua* one above another in the ſame *Vertical*, can be no way agreeable to any ſuch *Axioms*.

9. Nor yet was this *Phænomenon* ſo very irregular, but that ſomwhat of this kind ſeems to have happen'd before, for ſays *Fortunius Licetus, bis jam vidimus Irides in Meridiano ad Auſtrum*[i], that He had twice ſeen *Rainbowes* in the *South*; And *Cornelius Gemma* acquaints us that on the 25 of *September* in the morning *Anno* 1560. He ſaw a *Rainbow* of a like in the *whole*, though quite contrary poſition to ours in the *parts*, *Stabat enim convexa parte Solem verſus, concava vero verſus cujuſdam Parhelii ſubobſcurum typum, qui quaſi ad Circium annuebat*[k]: *Cornua igitur*, ſays *Fromondus*, *non in Terram ſpectabant, ſed averſa ab exoriente Sole, directe in Occidentem intendebantur*[l]: For it ſtood, ſays He, with its *Convex* part toward the *Sun*, and its *Concave* toward a ſomwhat obſcure repreſentation of a *Mock-Sun* to the *Southward*; whence *Fromondus* rightly concluded, that the *Horns* could not reſpect the *Earth*, but being averſe from the riſing *Sun*, muſt needs be ſtretched to the *Weſtward*. And what comes yet nearer to the buſineſs, *Gisbertus ab Iſendoorn* ſaw two exactly of the ſame

[h] *C. Plin. 2di. Nat. Hiſt.* Lib. 35. Cap. 11. [i] *Fort. Licet. de novis Aſtris & Cometis*, Lib. 6. cap. 2. [k] *Corn. Gemm. Coſmocrit.* Lib. 2 cap. 1. [l] *Lib. Fromond. Meteorolog.* Lib. 6. cap. 1. Art. 1.

kind with ours at the ſame time *Apr.* 8. 1645. both of them ſtanding with their Concavities to the *Sun* claſping it on each ſide at equal diſtance, whereof He has given us a *Diagramme* in his *Medulla Phyſicæ* Lib. 2. cap. 5.

10. To theſe add an *Iris* ſeen about nine years ſince, at the Pariſh of *Treſle* by Mr. *William Barneſley*, a good old Gentleman, whoſe aſſiſtance in riding about and ſhewing me the *Country* (notwithſtanding his Age) muſt by no means be forgotten, which though perfect indeed in figure, was yet irregular in poſition; the *Horns* of the *Bow* terminating in the *Horizon*, the *Centers* of *it* and the *Sun*, and the *Eye* of the *Beholder* being alſo in the ſame right line; But the *Spectator* not between the *Sun* and the *Rainbow*: for it appear'd it ſeems in the *Clouds* on the ſame ſide of the *Hemiſphere* with the *Sun* it ſelf, and not on the oppoſite: ſo that the *Sun* and *Spectator* were the two *extreams*, and the *Iris* in the middle, and not the *Beholder*: A *Phænomenon* (if not a *Segment* of ſome vaſt *Halo**) I think not very eaſy, if at all to be parallel'd: But I am inclined indeed to believe it was only ſo, for though *Seneca* acquaints us with certain *Græcians* that deny'd there could be any ſuch *Circle* about the *Sun*[m]; to whom *Epicurus* alſo ſeems to give his aſſent, only mentioning them to happen about the *Moon*[n]; and though *Ariſtotle* himſelf (who allowes them indeed to both *Planets*) is poſitive that they ſtill appear of a uniform *white* colour, and not adorn'd with the colours of the *Solar Rainbow*[o]: yet ſo frequently has there appear'd ſuch about the *Sun* (not to mention thoſe two eminent inſtances of *Seneca* and *Cardan*, to be met with almoſt in all *writers* on this Subject) that *Gaſſendus* alone profeſſes he had ſeen them himſelf at leaſt an hundred times[p]: And that they are many times *large* enough for ſuch a purpoſe, eſpecially when the *Sun* is near ſeting, is alſo evident from the joynt concurrence of all *Authors*, who aſſert the *Diameters* of theſe *Circles* to take up uſually 45 degrees, an eighth part of the *Heavens*.

11. And ſuch a large *Halo* as one of theſe it was, that was ſeen about the *Sun May* 17. 1681. at *Edingall* in this *County*, by the above mention'd curious and obſerving Gent. the Worſhipful *Francis Wolferſtan* Eſquire, and many others, having the lively colours of the *Solar Rainbow*, and extending its *Diameter* as near as he could gueſs (for he had no *Inſtrument* with him) about 40. degrees; which yet was not ſo remarkable in theſe

* *Coronam ſi diviſeris Arcus erit L. An. Senecæ Nat. Queſt.* Lib. 1. cap. 10. [m] *Ibid.* Lib. 1. cap. 2. *ſub finem.* [n] *Diogenis Laertii* Lib. 10. *in Epiſt. Epicuri ad Pythoclem* περὶ τῶν μετεώρων. [o] *Ariſtotelis* μετεωρολογικῶν Lib. 3. cap. 3. [p] *Pet. Gaſſendus in* Lib. 10. *Diogenis Laertii de Meteorologia Epicuri*, Tom. 2. p. 1129.

reſpect,

reſpects, as for the unuſual form it appear'd in, for though the *colours* were apparent in all the parts, yet the *Circle* was not every where (as commonly they are) equally broad, but narrower on each ſide to the Eaſt and Weſt, and much broader above and below the *Sun*, toward the *Zenith* and *Horizon* as in *Tab.* 1. *fig.* 4. And in this form it moved along with the *Sun* from half an hour paſt *ten* in the Morning, to as much paſt *one* in the Afternoon: what ſhould occaſion this *Phænomenon* indeed is hard to determine, yet certainly it muſt ariſe from ſome peculiar poſition of a *roric* cloud or vapor, whoſe parts were made up of ſmall threds (as 'tis alſo in *Parelia's* and *Rainbows*) having the figure of equilateral triangular *Priſmes* which cauſe the colours, that muſt accompany the *Sun* for all that time; for ſhould it be aſcribed to the *Sun* it ſelf, we ſhould certainly before now have heard of others of the kind: I know it is the opinion of the ancient *Philoſophers*, that the motion of this *Meteor* is not true but apparent, *i. e.* that the ſame *Halo* does not continue, but that a new one is ſtill generated, as the *Sun* holds on its courſe *, as may ſometimes be ſeen by ſome faint remains of the *old ones* left behind in the *Clouds* which the *Sun* has deſerted; yet certainly in this caſe of ours it muſt be granted to be otherwiſe, unleſs we ſhall groundleſly allow that the ſame *Cloud*, of the ſame make and poſition did ſtretch it ſelf before the *Sun* for 45. degrees together (for that the *Halo* continued in this form no leſs than three hours) which ſeems to lye under ſo great an improbability, that it can hardly be admitted.

12. But that which ſeems to put all out of doubt, on the *Tueſday* ſevenight following *May* 24. being *Whitſun-Tueſday*, either the ſame, or another of the like kind, was ſeen again by the ſame worthy perſon, which appeared alſo for ſeveral days in the following week, and was ſeen not only in *Stafford-ſhire*, but at *Oxford*, and *Rocheſter* in *Kent* by my worthy friend *Robert Conny* M. B. of *Magd. Coll. Oxon.* Whence it plainly appears probable, not only that the ſame *Cloud* did accompany the *Sun* for ſome time at leaſt; but alſo that notwithſtanding the ancient *Philoſophers*, have reſtrain'd the *Clouds* to the *middle Region*, *viz.* that they never tranſcend the tops of *Mountains*, yet they are ſometimes mounted much higher, being ſtrongly attracted by the *Rays* of the *Sun*, and then eaſily upheld, and thus carryed about with it for ſome conſiderable time; for otherwiſe how could ſuch a *Halo* be ſeen at ſo far diſtant places as *Stafford-ſhire* and *Kent*, at the ſame time.

13. From the *Sun*, both *Nature* and my *Method* direct me, to de-

* *Lib. Fromondi Meteorolog.* Lib. 6. cap. 2 Art. 7.

ſcend

ſcend to the *Moon*, and the *Accidents* attending *Her*, which are much of the ſame kind with thoſe of the *Sun*, though they happen not ſo frequently, ſuch as *Irides Lunares* whereof (though *Ariſtotle* profeſſes that He could ſee but two in above fifty years [q]) there have as many been ſeen here in leſs than two years; One at *Tunſtall* near *Wolverhampton* in *October* 1678. by Mr. *Franc.* and Mr. *Jo. Wightwick*; and another the very next year following *Aug.* 6. 1679. by the ingenious and every way accompliſht *Gentleman* the Worſhipful *Thomas Broughton* of *Broughton* Eſquire, who in the way between *Lichfield* and *Aſhinbrook* in company with ſix other perſons, about *Nine* at Night, the *Moon* then wanting five days of the *full*, and at that time of night poſſeſſing the S. S. W. part of the *Hemiſphere*, ſaw an *Iris Lunaris* of a faint whitiſh colour, entire and well determined, which after a quarter of an hours time ſpent in beholding it, they left as ſtrong and compleat as they found it, not knowing how long it had been there before they ſaw it, or how long it continued.

14. Which is not the firſt time that two of them have happen'd in ſo few years, for *Willebrordus Snellius* in his deſcription of the *Comet* in *November Anno* 1618. tells us of two that were ſeen in the ſame ſpace, one in *December* 1617. and another the day before the *Calends* of *January* 1618 [r]: That which is moſt remarkable is, that the increaſing *Moon* preſently upon her entrance into the ſecond *quarter* (being then but Διχότομος and of a weak light) five days before the *full*, and ſo near her *Southing*, ſhould cauſe ſuch an *Iris*, for they have always hitherto been thought never to happen, but at, or very near to the *full* of the *Moon*, and when few degrees above the *Horizon*. And yet *Albertus* gives us an inſtance almoſt equal to this *viz.* that He ſaw ſuch a *Lunar Iris*, when the *Moon* was ἀμφίκυρτος, in her *decreaſe*, and poſſeſſing at that time the very point of the *Meridian*, the *Bow* being in the *North* [s]. Which ſhall ſuffice at preſent for *Lunar Irides* the nature of them, and why not adorned with thoſe beautiful colours we ſee in *Solar Rainbows*, having been already diſcourſed of in the *Hiſtory* of *Oxford-ſhire* [t].

15. Next to theſe *impreſſions* made in the *clouds*, I deſcend to others made from them, ſuch as the amazing and ſometimes deplorable effects of *Thunder* and *Lightening*, which though they moſt commonly happen together, yet becauſe the *Lightening* firſt affects the Senſe, I give it the precedence as is uſual amongſt *Naturaliſts*. That *Lightening* ſhould happen in the *Winter-quarter*

[q] *Meteor.* Lib. 3. cap. 2. *L. An. Seneca Nat. Quæſt.* Lib. 1. cap. 3. [r] *Willebrordi Snellii Deſcrip. Cometæ Anno* 1618. cap. 5. p. 33. [s] *Lib. Fromondi Meteorolog.* Lib. 6. cap. 1. Art. 16. [t] *Nat. Hiſt. of Oxford-ſh.* Chap. 1. §. 7.

has been always accounted a great rarity; yet not only this, but a more unusual accident (perhaps not to be met again in many *Ages*) was shewed me at *Statfold*, by the forementiond worthy *Gentleman* the Worshipful *Francis Wolferstan* Esquire, who having built a new *Gate* before his house *Anno* 1675. and placed fair *Globes* of the finest and firmest stone over the *Peers* of it (whereon He depicted with his own hand two *Globe Dials* in oyl colours, and on the *terrestrial* the several *Empires* and *Kingdoms* of the *World*, that He might see how day and night succeeded in each of them) in *January* 1677. had them both struck with *lightening* in the same *point* (where the *great Meridian* of the *World*, and the *North* part of the *Polar circle* meet) there appearing first a little *hole* just in that *place*, and *cracks* radiating from it to all parts on that side, and the *stone* it self swelling forth so far as the *cracks* went, and quickly after dropping from the rest of the *Globes* (the parts coming away being as soft and as much disjoyned as moist *Sand*) as in *Tab.* 1. *Fig.* 5.

16. Yet the *Globe* on the left hand the *gate* going forth, seemed to have been stricken first, and the *other* not till the day following; which if so, the *accident* was so much the more strange, that they should be stricken exactly in the same *point* at different *times*: But doubtless they both received these *impressions* the same *instant*, and that by *Lightening* too, which being of a very subtile nature (*Des Cartes* thinks like *Aqua fortis**) and solvent of the parts of bodies to that degree that it is said by the *Ancients*, to melt *Swords* in their *Scabberds* [u], and *Mony* in mens *pockets* [w], did doubtless dissolve the parts of the *stone* (all being made of *Salt* and *Sulphur*) by consuming the Sulphureous parts, which knit the Saline ones of the *stone* together; as it happens in the burning of *Lime* where the Sulphureous parts of the *Lime-stone* being burnt away, the Saline parts separate and swell to a greater bulk upon the access of *moisture*; as I suppose these *Globes* did, being exposed to the *rains* and *mists*, that frequently happen at that time of year.

17. And here perchance by the way it may be no great digression, to enquire into the nature and efficient cause of those *Rings* we find in the *grass*, which they commonly call *Fairy circles*: Whether they are caused by *Lightening*? or are indeed the *Rendezvouzes* of *Witches*, or the dancing places of those little *pygmy Spirits* they call *Elves* or *Fairys*? And the rather, because 1. a Question (perhaps by reason of the difficulty) scarce yet attempt-

* *Ren. Des Cartes Meteoror.* Cap. 7. §. 9. [u] *Quod contigit M. Antonio Mureto Romæ.* [w] *L. An. Senecæ Nat. Quæst.* Lib. 2. cap. 31, & cap. 52. *Vid. etiam Plutarchum Sympos.* Lib. 4. *Quæst.* 2.

ed, and 2. becauſe I met with the largeſt of their kind (that perchance were ever heard of) in this *County*: one of them ſhewed me in the grounds between *Handſworth Church* and the *Heath* being near forty yards *Diameter*; and I was told of another by that ingenious *Gent.* (one of the moſt cordial encouragers of this work) the Worſhipful Sir *Henry Gough* Knight, that there was one in his grounds near *Pury-Hall* but few years ſince (now indeed plowed up) of a much larger ſize, he beleived near fifty, whereas there are ſome of them not above two yards *Diameter*; which perhaps may be near the two extremes of their *Magnitude.*

18. Nor is their difference only in the extent of their *Diameters*, they varying alſo in divers other reſpects, though not proportionably ſo much: for I have always obſerved that the *Rims* of theſe *Circles*, from the leaſt to the bigeſt, are ſeldom narrower than a *foot*, or much broader then a *yard*; ſome as bare as a path way in many parts of them, others of a *ruſſet* ſinged colour (both of theſe having a *greener* graſs in the middle) and a third ſort of a *dark freſh green*, the graſs within being of a *browner* colour; the firſt kind ſeldom leſs than five or ſix yards *Diameter*, and the other two of various *Magnitudes*; And all theſe again, as well imperfect, as perfect; ſome of them obtaining three parts of a *Circle*, others being *Semicircular*; ſome of them *Quadrants*, and others not above *Sextants* of their reſpective *Circles.*

19. Now that *Wizards* and *Witches* have ſometimes their field *Conventicles*, and that they dance in ſuch *rings*, we have ample Teſtimony from divers good *Authors*, ſome of them *Judges*, who received it in confeſſion from the *Criminals* themſelves condemned by them, all agreeing (if to be beleived) that their *dances* were always *circular*, but that as they ſerved a different *Maſter*, ſo they performed this *exerciſe* in a different *manner* from other *Mortals*; *Porro circulares eſſe omnes Choros qui ſic agitantur, atque ab averſis ſaltatoribus tripudiari affirmant*, ſays *Nicholaus Remigius*[x], *i. e.* that they affirmed all their *dances* to be *circular*, their *faces* being turned away from one another; for which he alledges the *Confeſſions* of *Achen Weber*, *Johanna Gerardina*, *Dominicus Petronius*, *Hennel Armentaria*, *Anna Ruffa*, *Zabella* the Wife of *John Deodat*, *Odilla Gaillarda*, and many others; to which *Sybilla Morelia* it ſeems added another *circumſtance*, that the *Circle* was always led to the *left hand*, as *Pliny* obſerves the ancient *Gaules* did, though they danced ſingle, *totum corpus circumagendo, quod in Lævum feciſſe, Galliæ religioſius credunt*[y].

[x] *Nich. Remigii Demonolatriæ Sag.* Lib. 1. cap. 17. [y] *Nat. Hiſt.* Lib. 28. cap. 2. *vid etiam Lucanum Belli Civilis* Lib. 1. v. 450.

20. Which *Relations* (eſpecially if compared together) being ſomwhat obſcure may in part at leaſt be cleared out of *Baptiſta Codronchius*, who ſpeaking in like manner of the ſame *Conventicles* and *dancings*, which they call *Dianæ ludos*, the ſports of *Diana*; *Choreas*, ſays He, *à noſtris penitus abſimiles ducunt; fœminæ namque poſt dorſum maſculis inhærentes retrocedendo ſaliunt, terga dando inclinant, caputque non ante, ſed retro*, &c.[z] that the *dances* they lead are quite unlike ours, for the *Womens* faces ſtanding to the *Mens* backſides, they dance retrograde, bowing their *bodies* forward, and their *heads* backward, as the ſame *Codronchius* ſays they worſhip the *Devil*, *non faciem, ſed terga illi obvertentes, caputque non in pectus, ſed in ſcapulas inclinantes*[a], not turning their *faces*, but their *backs* towards Him, and bowing their *heads* not downward toward their *breſts*, but backwards upon their *ſhoulders*: which though it pretty well explain the phraſe of *Remigius* [*ab averſis ſaltatoribus*,] yet how this poſture can agree with leading the *Ring* always to the left hand according to *Sybilla Morelia's* information, I freely confeſs I do not underſtand.

21 But to come cloſe to the buſineſs, let us return again to the forecited *Remigius*, who was a *Judg* in *Lorrain*, and perhaps the beſt skill'd in matters of this nature that the *world* has yet known (having had the Examinations, Confeſſions and Condemnations of no leſs than nine hundred *Wizards* and *Witches* in fifteen years time) who, to omit many others of the like kind, gives us a moſt remarkable relation of ſuch a *Conventicle*, and no leſs ſuitable (if true) to our preſent purpoſe. On the eighth of the *Calends* of *Auguſt* (ſays He) An. 1590. one *Nicolæa Lang-Bernhard* having been grinding at a *Quern* not far from *Aſſenuncuria*, and returning about noon, as ſhe walked by a hedg ſide, ſaw in an adjoyning field, an aſſembly of *Men* and *Women* dancing in a *Ring*, but in a quite different manner from the uſual practice of others; for ſays my author, *averſi terga oſtendentes id faciebant*, i. e. that they did it turning their *backs* upon one another; but at length viewing them more attentively, *ſhe* perceived ſome amongſt them to have *cloven* feet like *Oxen* and *Goats*, at which being ſore aſtoniſhed, and almoſt dead with fear, and calling upon the auxiliary name of *Jeſus* to help her well home, they forthwith all *vaniſht* except one *Petter Groſs-Petter*, whom quickly after *ſhe* ſaw ſnatcht up into the Air, and to let fall his *Maulkin* (a ſtick they make clean *Ovens* withal before they ſet in their bread) and *Her ſelf* was alſo driven ſo forcibly with the *wind*, that it made her almoſt loſe her breath, and when ſhe was got home to keep her bed no leſs than three days.

22. The fame of which matter being quickly ſpread by *her ſelf*

[z] *Bapt. Codronchii de Morb. Veneſ.* Lib. 3. cap. 8. [a] *Ibidem.*

and *Relations* through the whole *Village*, this *Petter* at firſt brought an action of ſlander againſt *Nicolæa*, but knowing his own guilt, and fearing to proceed too far, he deſiſted again; which breeding ſuſpition in the *Judg*, upon enquiry into his *life* and *manners*, he was at length apprehended, and at laſt freely confeſt the whole matter, and diſcovered others of his *Companions*, as *Barbelia* the wife of *Johannes Latomus*, *Mayetta* the wife of *Laurence Super Major*, both which though examined a part, yet confeſt expreſly in the ſame words, *de ſaltato à ſe averſis una cum intermediis Cornupedibus choro*, &c. *i. e.* that they had *danced* intermixt with thoſe cloven footed creatures at what time *Petter* was amongſt them.

23. And for further evidence of the buſineſs *John Michael* Herdſman did alſo confeſs that while they thus *danced*, he plaid upon his *crooked* ſtaff moving his fingers upon it, as if it had been a *Pipe*, ſitting upon a high bough of an *Oak*; and that as ſoon as *Nicolæa* called upon the name of *Jeſus*, he tumbled down headlong to the ground but was preſently catcht up again with a *whirlwind* and carryed to *Weiller* Meddows, where he had left his *herds* a little before: Add hereunto (which is moſt of all to the purpoſe) that there was found in the place where they danced a *round circle*, wherein there were the manifeſt marks of the treading of *Cloven* feet, as plain as are made by *Horſes* that run the *Ring*, as was teſtifyed by *Nickel Clein*, *Deſiderius Vervex*, *Gaſper Sutor*, and divers others that had been to ſee it, and were examined by the *Judg* as Witneſſes upon it: which *circle* remained from the day after *Nicolæa* had diſcover'd the buſineſs, till the next winter when the Plow cut it out[b].

24. And as the *Devils* and *Witches* do ſometimes leave the lively *marks* of their *dancings* after they have held ſuch *Conventicles*, ſo *Athanaſius Kircher* expreſly acquaints us from the informations of *Cyſatus* and *Schulzius*, that the *Viruli* or *Virunculi montani*, little *Pygmy Spirits* that infeſt the *Mines* of *Helvetia* and *Hungary*, do ſometimes alſo leave the *prints* of their *feet* in the moiſt ſand and ſoft tenacious earth of the *Mines*, about the bigneſs of the *feet* of *Children* of three years old[c]: whence ſome men perhaps may think it probable enough, that ſome few of theſe *Circles* (eſpecially the bare ones that have but little graſs) may ſometimes indeed be made by the forementioned mixt dances of *Devils* and *Witches*, and others by thoſe little *dwarf Spirits*, we call *Elves* and *Fairies*.

25. Not that there are any Creatures of a *third kind* diſtinct from *Men* and *Spirits* of ſo ſmall a ſtature, as *Paracelſus* fancied,

[b] *Nich. Remigii Dæmonolatriæ Sag.* Lib. 1. cap. 14. [c] *Athanaſ. Kirch. Mundi ſubterr. Tom.* 2. Lib. 8. §. 4. cap. 4.

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which he was pleased to stile *non-Adamical* Men; but that the *Devils* as they are best pleased with the sacrifices of *young Children* (which are frequently offered by *Midwife-VVitches* in some *Countries*, their *fat* being the chief ingredient wherewith they make the *Oyntment* indispensably necessary for their *transportation* to their *Field-Conventicles* [d]) so it seems they delight themselves chiefly in the assumtion of the shapes of *Children* of both *Sexes*, as we are credibly informed by sober *Authors*, such as *Georgius Agricola* [e], *Wierus* [f], and others; who affirm them so frequent, especially in the *German*, *Hungarian*, and *Helvetian* (Mr. *Bushell* seems also to hint the same in our *VVelsh* Silver [g]) Mines, that they have given them divers names in their respective places, as in *Germany* those in the shapes of *Men* they call *Cobalos*, and those in the shapes of *VVomen*, *Trullas*, and *Sibyllas albas*; so in *Italy* they call them *Folletos* and *Empedusas*, and in other places *Screlingeros*, *Gutelos*, *Bergmanlin*, &c. [h] More particularly such were the *Annebergius* and *Snebergius* of *Agricola*, and the *Hutgin* of *Trithemius*. Nay so frequent has been the appearance of these *Demunculi* (as some report) in the more *Northern* parts of the *world*, that perhaps it has given the occasion to the stories of *Pygmies* mentioned by *Olaus Magnus* [i] and the antient *Geographers*, *Ctesias* having given them a most agreeable colour making them all *Negroes*, and placing them in the midst of *India*, μέσῃ τῇ Ινδικῇ ἄνθρωποι εἰσὶ μέλανες, καὶ καλοῦνται πυγμαῖοι, μικροὶ δέ εἰσι λίαν· are his very words, *i. e.* that in the midst of *India* there are a sort of *black men* called *Pygmies* which are very little ones [k]: For 'tis hard to believe there is, or ever was, any such dwarfish sort of people considering them *nationally*, and not as rare and single instances; notwithstanding the *Testimonies* of the ancient *Poets* and *Historians*; or now of late, of *Van Helmont*, who would perswade us from the Relation of a *Canarie Merchant*, that there were formerly of them in those *Islands* [l]; or of *Marcus Marci* who belyes *Pigafetta* making him say that he saw *Pygmies* in the Isle *Aruchet* near the *Molucca's* [m]; whereas indeed he only says, that an old *Pilot* of the *Molucco's* told his *Company* of such, that lived in *Caverns* there, and had so very *long Ears* that they slept upon one, and cover'd themselves with the other; but that the wind and stream being against them thither, and his *Men* di-

[d] *Bapt. Codronchii de Morb. Venef.* Lib. 3. cap. 8. & *Joh. Bodini Mag. Dæmonomania.* Lib. 2. cap. 5. [e] *Geo. Agricola de Animantibus subterraneis sub finem.* [f] *Joh. Wieri de præstigiis Dæmonum* Lib. 1. cap. 22. [g] *Bushell's Remonstrance of his Majesties Mines Royal in Wales An.* 1642. *see also Mr. Hooks Lecture de Potentia Restitut.* p. 41. [h] *Athanas. Kircheri Mund. subterr. Tom.* 2. Lib. 8. §. 4. cap. 4. & Lib. 10. §. 4. cap. 11. [i] *Olai Magni de mira natura Rerum Septentr.* Lib. 1. cap. 11. [k] *Ex Ctesiæ Indicis excerptæ Historiæ a Photio* p. 681. *Edit. Steph.* An. 1592. [l] *Joh. Bapt. Van Helmont Demonstr. Thes.* p. 432. *Edit. Venet.* An. 1651. [m] *Joh. Marc. Marci Idearum Operatr. Idea*, cap. 6. *de Pygmæis & Gigantibus.*

ſtruſting the *relation*, would not go to ſee them[n]. Which makes me alſo ſuſpect that he may alſo abuſe the two *Oderici*, whom alſo he cites to have found ſuch in their *Travels*.

26. And not only the bad but the good *Genii* alſo appear in the ſhapes of young *Children*, if we may credit the relation of a pious man an acquaintance of *Bodinus*, who had conſtantly the aſſiſtance of ſuch a *guardian Angel*, which indeed he never ſaw but once, and that when he was in great danger of his Life, it appearing to *him* in the likeneſs of a *Child*, clad in white rayment ſomewhat inclining to purple, of a moſt lovely *viſage* and delicate *forme*[o]. And to come nearer home if we may believe the ſtory of *Anne Bodenhom* the Witch of *Fiſherton Anger* in the *County* of *VVilts*, ſet forth at large by *Edmund Bower*, and the Reverend and Learned *Hen. More* D. D. The Spirits which ſhe raiſed (as confeſt by *Anne Stiles* who was frequently at her *Conjurations*) always appear'd in the *ſhape* of little ragged *boys*, who ran round the houſe where the *Witch* had drawn her *Staff*, her *Dog* and *Cat* dancing with them, *&c*[p]. Some of the Witches alſo executed at *Exeter An.* 1682. unconſtrainedly confeſt, that the *Devil* appeared to them like a ſhort black Man about the length of one's Arme. All which put together ſeems not a little alſo to favour the opinion that ſuch *Demunculi* may be the *Fairies* ſo much talk't of, and that they may indeed ſometimes occaſion ſuch *Circles*; but herein every Man is left to chooſe his own *Creed*.

27. For my part though my faith be but weak in this matter, (notwithſtanding it cannot be deny'd but the bad as well as good Angels may be Miniſtring ſpirits and converſe with Mankind) yet if I muſt needs allow them to cauſe ſome few of theſe *Rings*, I muſt alſo reſtrain them to thoſe of the *firſt* kind, that are bare at many places like a *path-way*; for to both the others more *natural cauſes* may be probably aſſigned: As firſt according to the opinion of the ingenious Mr. *Liſter*, that at leaſt ſome of them may be occaſioned by the working of *Moldwarps*, which however for the moſt part irregular they may be, yet may have a time when perhaps by inſtinct of nature they may work in *Circles*; as 'tis certain *fallow Deer* do in the time of *Rutting*, treading the ſame *Ring* for many days together: indeed the ſtrange fertility of theſe green *Circles*, even upon the moſt barren Heaths, beyond any place elſe about them, doth argue ſome extraordinary dung or compoſt, which he ſuppoſes to be the Excrements of *Moles*, or *Moldwarps*: others have fetcht their Origin from the *dung* and *urin* of *Cattle*

[n] *Viaggio de l Sign Ant. Pigafetta atorno il Mondo. tra gli Viaggi raccolti da Gio. Bart. Ramuſio* p. 368. *Stampat. Venet.* An. 1588. [o] *Joh. Bodini Mag. Dæmonomaniæ* Lib. 1. cap. 2. [p] *Dr. More's Antidote againſt Atheiſm*, Lib. 3. chap. 7.

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fed in winter time at the ſame *pout* of hay, for their heads meeting at the *Hay* as the *center*, and their bodies repreſenting as it were ſo many *radii*, has made ſome imagin that ſuch *Circles* are deſcribed by their *dung* and *urin* falling always from them in due diſtance, and *fertilizing* the ground in a more than ordinary manner by the largeneſs of the quantity. Others again have thought them deſcribed by the *water* and ſome of the *Hay* it ſelf, falling plentifully in wet weather from the *Eaves* of round *hay-ſtacks*, that have been ſituate within them, which rotting into dung thus fertilizes the Earth in a *circular* manner; and indeed 'tis poſſible that ſome of them may be made either of theſe ways.

28. But for the *Circles* mentioned §. 17. of this *Chapter* of 30, 40, and 50 yards *Diameter* (too too large for the ſituation of any *Hay-rick*, or to be deſcribed by *Cattle* feeding at a *hay-pout*) and ſome of them running through *hedge* and *ditch* as ſhall be ſhewn in fit place, we muſt ſeek for other *cauſes*: In order whereunto (having good opportunity in *New-Parks* near the *City* of *Oxford*, where there is always plenty of them) I thought fit to examin the nature of the *Soile* under the *Rims* of them, eſpecially how it differd from the adjoyning *earth*, and found by digging up ſeveral, that the ground under all of them, was much *looſer* and *dryer* than ordinary, and the parts interſperſed with a white *hoar* or *vinew* much like that in *mouldy* bread, of a muſty rancid ſmell, but to taſt inſipid, and this ſcarce any where above ſix inches deep, the *earth* again below being of its due conſiſtence and genuin ſmell, agreeable to the reſt of the *ſoils* thereabout.

29. Whence it being equally plain that I was no longer to enquire for the *origin* at leaſt of theſe *larger Circles*, either from any thing under or upon the ground; it remained that I ſhould look for ſome *higher principle*, and indeed after a long and mature deliberation, I could think of none nearer than the *middle region*; *viz.* that they muſt needs be the effects of *Lightning*, exploded from the *Clouds* moſt times in a *circular* manner; perhaps for this very reaſon by the *ancient Naturaliſts* called *fulmen diſcutiens*: which though of a viſcous ſulphureous conſiſtence, yet taking fire and violently breaking the *Cloud* wherein it was pent, muſt naturally expand it ſelf every way *obliquely*, for the moſt part in a uniform *conical* manner ſo as at due diſtance to become a *Circle* as in *Tab.* 1. *Fig.* 6. and in that *forme* to ſtrike the *Earth* as may be ſeen ſometimes in *arable grounds*, but chiefly in wide and open *paſtures*, whether *Meddows* or *Uplands*, where *Trees* and *Hedges* interrupt leaſt.

30. And not only in a *ſingle*, but ſometimes in a *double* and *treble Circle* one within another, as was lately ſhewn me by my

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Worthy and Ingenious friend *John Priaulx M. A.* of *Univerſity Colledge* in the field between *St. Giles*'s Church near *Oxon* and the *garden* called *Jericho*: They are rarely alſo ſeen of a *quadrangular* forme, encompaſſed with another larger of the *Circular* kind, as in *Tab.* 1. *Fig.* 7. whereof there were ſhewn me no leſs than *two examples* by my Ingenious and obſerving friends *John Naylor* and *Hugh Todd M. M. A. A.* and *Fellows* of *Univerſity Colledge* in the ſame *St. Giles*'s fields: which yet may all be reconciled to the ſame *Hypotheſis*; the former proceeding from *three* different *flaſhes*, the *ſecond* widening the *orifice* of the *Cloud* more than the *firſt*, and the *third* than the *ſecond*, and ſo conſequently the *Circles*; the latter from the *Clouds* breaking firſt in a *quadrangular*, and after in a wider *Circular* forme as in the ſame *Tab.* 1. *Fig.* 7. All theſe *Rings* and *Squares* being greater or leſs in proportion to the diſtance of the *Cloud* from the *Earth*, and tenaciouſneſs of the matter, and all appearing at firſt of a *ruſſet* colour, the graſs juſt then being ſinged with the *Lightening*; but the year following of a *dark luxuriant green*, the earth underneath having been highly improved with a fat ſulphureous matter (received from the *Lightening*) ever ſince it was firſt ſtriken, though not exerting its fertilizing quality till ſome time after.

31. Yet we muſt not eſteem this improvement by *Lightening* to be ſo *natural* and *genuin*, as what is made by our ordinary *Compoſt*, for theſe only ſtimulat the principles of *vegetation*, whereas in this caſe the bonds of the *natural mixtion* ſeem to be diſſolved, the parts of the body opened, and the true *ſpirit* of *vegetation* flying away, the *Salt* alſo and *Sulphur* (having loſt the *ſpirit* which was their common *vinculum*, and preſerved the *temperament*) endeavour a divorce, get into exaltation, and joyning with the adventitious *ſulphur* of the *Lightening*, ſeem unnaturally to enforce this *luxuriant vegetation*, leaving behind them in the dry effete earth, that hoary white ſubſtance, of a muſty ſoure ſmell, which I take to be the *fæces* of both *ſulphurs*; in which opinion I am the rather confirm'd for that the *Cattle* which feed in theſe *paſtures*, unleſs driven to it by extream *drought*, will never touch this *rank* ſort of graſs, it not having the genuin taſt of the reſt.

32 And hence it is that ſo many *Boraſco's*, or ſtormes of *Thunder* and *Lightening* have ſuch effects upon *liquors*, as to make them *ſtink* and acquire a *ſoureneſs viz.* by opening the bodies of them, and leting flye that *ſpirit* that before ſecured the *temperament*, by reſtraining the *Sulphur*; which being alſo of a volatil nature and the principle of *odours*, geting into exaltation (in this diſſolution or rather corruption of the *Compoſitum*) endeavours the like divorce and cauſes the *ſtink*: as the *Salt* in like manner freed from the

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bonds of the *Sulphur*, gets at length the dominion and cauſes the *ſourneſs*; which no queſtion they likewiſe did under the *Rims* of theſe *Circles*, for having kept ſome of this *earth* by me but a natural day, it ſmelt juſt like the ſoure tappings of dead beer in a *Cellar*.

33. Yet that this is the true *Philoſophical* account of them, I will not be ſo confident as firmly to pronounce; but for the matter of fact that they are cauſed by *Lightening*, I take it to be moſt certain, haveing not only obſerved them my ſelfe after *Thunder* and *Lightening* to be firſt *ruſſet* and afterwards of a *dark-luxuriant green*; but received it alſo from divers other ſober perſons of indiſputable credit: more eſpecially we may relye on the faithful teſtimony of one Mr. *Walker* a man eminent not only for his skill in *Geometry* but in all other *accompliſhments*, who by chance one day walking in a *Meddow* amongſt *Mowers* (with whom he had been but a little before) after ſuch a ſtorme of *Lightening* preſently eſpyed one of theſe *Rings* about five yards *diameter*, the *Rim* whereof was about a foot broad, newly burnt bare as the colour and brittleneſs of the graſs roots did plainly teſtify, which the year following came more freſh and *verdant* in the place burnt, than in the middle, and at mowing time was much taller and ranker graſs than any in the *Meddow* [q].

34. If it be objected; that if *Lightening* cauſes theſe *Circles*, it muſt alſo be allowed that it deſcends *vertically*; which we know to be ſeldom or never ſeen. And that ſecondly if their *origin* be aſcribed to *Lightening*, they muſt always remain of the *ſame* magnitude, never enlargeing themſelves to a *greater diameter* than they had at firſt; which yet we cannot but acknowledge ſome of them certainly doe; having not only took notice of the thing my ſelf, but had it from others of unqueſtionable fidelity, that remarked the ſame in two of the *Circles* mention'd §. 17. of this *Chapter*: That at *Handſworth* having been obſerved for divers years by the Reverend Mr. *Ange Rector* of the place, who ſeriouſly told me that when he firſt knew it, it exceeded not 4. yards *diameter* at moſt, whereas when I meaſured it *Anno* 1680. it was increaſed almoſt to 40. haveing run through the *hedg* into another field: As that other at *Pury-Hall*, being in a field near the *River* (as I was informed by the aforementioned Sr. *Henry Gough*) ſo increaſed from a *ſmaller* to a *larger* extent, till at length it came to be of near 50. yards *diameter*, and to run into the *water*. If I ſay theſe matters be objected,

35. It muſt be anſwered firſt, that though it be true, that

[q] *Communicated in a Letter from the ingenious Mr.* Jeſſop *of* Broom-hall *in* York-ſhire *to my Learned and Ingenious Freind* Martin Liſter *Phyſician at* York, *Philoſoph. Tranſact.* N. 117. p. 394.

§ *Communicated in a Letter from the ingenious Mr.* Jeſſop *of* Broom-hall *in* York-ſhire *to my Learned and Ingenious Freind* Martin Liſter *Phyſician at* York, *Philoſoph. Tranſact.* N. 118.

Lightening indeed ſeldom deſcends *vertically*, yet that it is as ſeldom found too that any of theſe *Rings* are *Mathematically* round, (unleſs they happen to be on Hils or Banks ſides, which may be obverted in right Angels to any point of the Heavens between the *Zenith* and *Horizon*) moſt of them being rather of a *parabolical* figure, coming ſo much the nearer to a round, or receding farther from it, in proportion as the *Lightening* comes forth nearer or more remote from the *Zenith*: whence alſo it comes to paſs that when *Lightening* is exploded (as moſt frequently it is) in an oblique Line, theſe *Circles* are imperfect, and that there are more *Semicircles*, *Quadrants*, and *Sextants* amongſt them, than any other, according to the aforeſaid proportion as the *Lightening* breaks forth of a *Cloud* more remote from the *Zenith*, or nearer to the *Horizon*; thus if it proceed from a *Cloud* not above 15. degrees above the *Horizon* the lower part only of the *circular exploſion* will bruſh the ſurface of the *Earth* as in *Tab.* 1. *Fig.* 8. and will make perhaps but the *Sextant* of a *Circle*; if 22. degrees and ½ above it, a *Quadrant*; if 45, a *Semicircle*; if 67 ½, three fourths of a *Circle*, and ſo proportionably more or leſs in the *intermediat* degrees.

36. And as to their growth, though it preſs much harder than the former, yet the difficulty appeareth not ſo inſuperable, but that it may be replyed, that as the *Exploſion* of *Lightening* when it firſt breaks the *Cloud* preſſes equally outward on every ſide, ſo 'tis like it may retain the ſame tendency after it has ſtriken the *Earth* in ſuch *Rings* as are intire, ſuch being ſuppoſed to be made by ſtreams of lightening deſcending in a *Conical* figure, and to ſtrike the *Earth* in oblique lines on every ſide pointing all outwards, which poſſibly too infecting the *Earth* (for I look on them as a diſeaſe) with ſome noxious quality that may have ſomewhat of the nature of the *Herpes* ἐσθιόμενος, a ſort of *Shingles* which *Sennertus* deſcribes to be *Morbus, qui una parte ſaneſcente, in proxima ſerpit*, or *Malum ubi medium ſaneſcit, extremis procedentibus*[1], *i.e.* a Diſeaſe that creeps on in the out parts, the middle growing well; theſe *Circles* I ſay being infected thus at firſt from the *Clouds* with ſomething of this nature, may continually perhaps extend themſelves in the like manner.

37. Wherein I am the more confirmed, having obſerved ſome of the *imperfect Segments* of theſe *Circles*, eſpecially the *Semicircles*, and ſuch as obtain *three parts* of a *Circle*, to grow inward in the *middle*, where the *Lightening* hath ſtruck the *Earth* ſtrongeſt, much faſter than elſewhere, ſo as to render them on that ſide *irregular* and *crooked*, as in *Tab.* 1. *Fig.* 9. which had they not done might have been an unanſwerable objection againſt this *Hypotheſis* it being impoſſible

[1] *Dan. Sennerti Oper. Tom.* 3. Lib. 5. part 10. cap. 17.

impoſſible indeed that ſuch as theſe, made by a *circular exploſion* of *Lightening*, that only bruſhes the *earth* on the lower ſide, the upper part vaniſhing in the thin *Air* ſhould extend themſelves otherwiſe. And thus much for theſe *Circles*, and enough too perhaps may the *Reader* ſay to break my promiſe ſo ſolemnly made in the firſt §. of this *Chapter*, *of not enlarging to the utmoſt compaſs of my theme*; but herein I do not doubt but *he* will eaſily give me pardon (as in all other *ſubjects* of the like kind) it haveing ſcarce ever been treated on before, by any other *Author* that I could either meet with, or hear of.

38. Next *Lightening* I proceed to the effects of *Thunder* that have ſometimes happened in this *County*, which though not quite ſo *deplorable* as many mentioned by *Authors*, yet being as wonderful in *operation* as any of them, are therefore no leſs *remarkable*: That *Thunder* now and then proves mortal to *Animals*, where the *bolt* has fallen any thing near though it never touch them, is evident from what happened at the *Town* of *Uttoxater* Anno 1678. at the Houſe of the worthy and moſt courteous *Gent.* the Worſhipful *Thomas Kinnerſley* Eſq; where the *bolt* piercing the roof of his new *Stable* and cleaving the *Timber* in ſeveral places, and paſſing through two *floores*, and ſo through a *Saddle* that hung by the Walls into the *pavement*, though it never touched Mr. *Wodenoth*'s horſe of *Roceſter* then in the Stable (that could be perceived by any mark upon him) yet kill'd him out right: But that *Thunder* ſhould mortally affect *Animals* at a great diſtance, and not near any probable fall of a *bolt*, is a much greater difficulty; and yet even this we find aſſerted from long experience, as I was informed by the forementioned worthy *Gentleman* the ingenious *Thomas Broughton* of *Broughton* Eſq; who *June* the 14th 1680. haveing 15. doſen of *Crevices* brought him by a poor man that made it his buſineſs to catch them, and finding the better half of them dead, made enquiry of *him* what the reaſon might be; to whom the *Man* gave this ready reply, that the late *Thunder* had done it, and that he had obſerved it to have the ſame effect on them divers times before; wherein I am very much inclined to believe *him*, haveing found it alſo at *Queenborough* in the Iſle of *Shepey* in *Kent*, to kill their *Lobſters* in the like manner, and more eſpecially thoſe of the larger ſize, a fiſh ſo altogether *analogous* to a *Crevice*, that they ſeem only to differ in magnitude, and place of abode.

39. Now that the *Horſe* was kill'd by the peſtilential ſulphureous *ſteam* that the *bolt* brought with it (as I ſuppoſe all other *Animals* are in the like Circumſtances) is plain from the Teſtimony of the *Groome*, who had he not been near the *door*, had hardly eſcaped it: But how the *Crevices* ſhould be thus ſecretly deſtroyed

where no ſuch *ſtench* is perceptible, at leaſt to human ſenſe? is a much harder *problem*; nor can it be reſolved but in ſuch *general termes*, as that the *Air* is certainly indued by the *Thunder* with a peculiar quality that *peſtilentially* affects the *juices* of theſe *Animals* ſo as to deſtroy their *temperament*; perhaps in the ſame manner as in §. 32. of this *Chapter*, which yet may not be perceptible to other *Animals*: Nay it has ſometimes fallen out that a certain *Individual* of the ſame *ſpecies* of *Animals* ha's had a temperament ſo peculiar as to be violently moved by *Thunder*, though at a great diſtance, others of the ſame kind being wholly indiſturbed, as is avouched to us by the Learned Dr. *Nathaniel Fairfax*, concerning one Mrs. *Raymond* of *Stow-Mercat* in the *County* of *Suffolk*, who when ever ſhe hears *Thunder* even a farr off, begins to have a bodily diſtemper ſeize on her, growing faint, ſick in her ſtomach, and ready to vomit, *&c*.

40. After *Thunder*, that which next falls under conſideration, are other more uncommon *Meteors*, that have been obſerved here; ſuch as that ſeen at a place called *Broad-heath* in the pariſh of *Seighford* between that and *Ranton Abbey* about ſeven at night near *Michaelmaſs* time *Anno* 1676. by Mr. *John Naſh* the worthy *Vicar* there; which at a diſtance (he told me) appeared like a *great fire*, but coming nearer, its forme and motion were plainer to him, it being of a *globular figure*, moveing by *jerks* and makeing ſhort *reſts*, at every one of them letting fall *drops* of *fire*, which were part of its body, for it decreaſed in magnitude the farther it went, and the oftner it dropt, ſo that it wholly diſappeared at about 3 quarters of a mile's diſtance: which upon computation of *time*, and other *circumſtances*, I take to be the very ſame mentioned in our *Philoſophical Tranſactions* that was ſeen in ſo many diſtant places of *England*, *Sept.* 20. 1676. about the ſame time of night, *viz.* in *Kent*, *Eſſex*, *Suſſex*, *Surry*, *Hamp-ſhire*, *Devon-ſhire*, *Sommerſet-ſhire*, *Gloceſter-ſhire*, *Oxford-ſhire*, *Northampton-ſhire*, *Worceſter-ſhire*, and (I believe I may add) *Stafford-ſhire*; whereof there being already ſo large an account given by the Reverend and Learned Dr. *John Wallis Savilian Profeſſor* of *Geometry* in the *Univerſity* of *Oxford**; I ſhall add little more concerning it.

41. But that, notwithſtanding it appear'd at *Oxford* and *Seighford* in ſomewhat a different ſhape, and motion; at *Oxford* ſomewhat *long* with a round knob at the end, and moveing equally ſwift; at *Seighford globular*, and makeing ſhort *reſts*; yet it ſtill might be the ſame individual *Meteor*, which (not to mention the miſtakes perhaps occaſioned through the inadvertency of the ſurprized *Relators*) might poſſibly alter a little in ſo great a diſtance: How-

* *Philoſoph. Tranſact.* Numb. 29. *ſee more of the ſecret operations of Thunder* Numb. 127.
* *Philoſoph. Tranſact.* Numb. 135. p. 863, 864.

ever

ever the thing were, it was certainly no other than one of the *Meteors* called *Capræ Saltantes*, for I find them both of a *round* and *long* figure, and to be ſo called, not from any thing they have of a *goat*, but their moveing by *jerks*, ſomewhat like the laſcivious *leaps* of that *Animal*, and the little *languets* of fire that hang at, and ſometimes fall from them, which antiquity ha's been pleaſed to fancy like the beard, or locks of a *Goats* wool: Theſe frequently fly ſo high (notwithſtanding they ſeem very low) that *Meteorologiſts* have placed them in the *upper Region*, but have not ſo firmly fixt them there, but that they allow the like alſo in the *middle*, and *lower*: How *high* this might be is not eaſy to determin, but certainly it could not be very *low*, it being ſeen at ſo many diſtant places both in *Longitude*, and *Latitude*, ſo near the ſame time; which I preſume that an ordinary *Meteor* in the *lower Region* could by no means be, though we allow its motion never ſo ſwift. Such a *Capra* it was that was ſeen about the bigneſs of the *Moon*, when *Paulus Æmilius* waged War againſt *Perſeus* King of *Macedon*, *Nos quoque vidimus* (ſays *Seneca*) *non ſemel flammam ingentis pilæ ſpecie, quæ tamen in ipſo curſu ſuo diſſipata eſt*, i. e. that he alſo had ſeen a *flame* in the form of a great *ball* which diſperſt it ſelf in its flight: ſuch another he ſays was ſeen upon the departure of *Auguſtus*; another upon the *Tragedy* of *Sejanus*; and that the death of *Germanicus* was ſignaliz'd by another [t].

42. To which add another *Meteor* alſo of a *globular* figure, ſeen *Nov.* 22, *Anno* 1672. about 12. or one at night, not in *motion* but *ſtationary*, againſt the *Weſt* door of *Wednesbury* Church, by the Ingenious Mr. *Miller Vicar* there, and two others in his *Company*; which ſhon ſo bright, that it gave them light (though a very dark night) at half a miles diſtance; where it continued for about ½ of an hours ſpace, and then of a ſudden diſappeared; whereupon there immediately followed a great *ſtorme* of *Hail* and *Rain*: And of ſuch as theſe we have alſo plenty of parallel Examples in ancient *Hiſtories*, *Si minore vi mittuntur ignes, defluunt tantum & inſident, non feriunt, nec vulnerant*, ſays *Seneca*, i. e. that many times theſe fiery *Meteors* only ſlide down and reſt upon fit ſubjects, ſuch as the *Maſts* of *Ships* at *Sea*, the *Spears* and *Enſignes* of Soldiers at land; *Gylippo Syracuſas petenti, viſa eſt ſtella ſuper ipſam lanceam conſtitiſſe*; *in Romanorum caſtris viſa ſunt arderepila, ignibus ſc. in illa delapſis*, ſays the ſame *Seneca* [u]; that there was a fiery *Meteor* in the ſhape of a *Star* that ſate upon the ſpear of one *Gylippus* as he was marching to *Syracuſe*, and that the like were ſometimes ſeen, to be fix't upon the *Javelins*, amongſt the *Tents* of the *Romans*.

43. Nor want there *inſtances* of the like kind near our own

[t] *L. 1. Senec. Nat. Quæſt.* Lib. 1. cap. 1. [u] *Ibidem.*

times, for *Fromondus* informes us that ſuch another fire ſate quietly upon the *Standard* of the valiant *Collonel William Verdug* before the deciſive battle of *Prague Anno* 1620. All which, together with this of ours at *Wednesbury*, I take only to be the *Helena*. of the *Ancients* foretelling great *ſtormes* and enſuing *devaſtations*, ſuch as the Rape of the *Lady* whoſe name they bear, brought upon *Greece*; the Phyſical reaſon whereof perhaps may be aſſigned right enough by the *Ancients*, viz. that while the *Meteor* remains compact and indiſperſt, it is a ſigne that the matter of the enſuing *tempeſt* is no where ſpent, as it proved in this of ours at the Church of *Wednesbury*, a great *ſtorme* of *hail* and *rain* immediatly following it; whereas when ſuch *Meteors* are divided, the *prognoſtic* is quite different, it being thence preſumed that the matter of the *tempeſt* is weak and broken, the parts whereof antiently were called *Caſtor* and *Pollux*, *Deities* it ſeems ſo favourable to *Seamen*, their appearance always boding a proſperous voyage, that they uſually made them the ἄφθονον of *Ships*, as we find them on the *Ship* of *Alexandria* in which St. *Paul* ſailed from *Melita* to *Syracuſe* [w].

44. Nor have the *Heavens* and *Air* only preſented the *Eye* with unuſual *Objects*, but alſo the *Ear* has ſometimes been as much ſurprized from them: for not to mention ſome unknown noiſes pretended to have been heard about *Alrewas*, nor the ſhreeks as it were of perſons about to be murdered ſaid to be heard about *Frodley*: We need go no farther for an inſtance than the ſame *Town* of *Wednesbury*, where the *Colyers* will tell you that early in the morning as they go to their work, and from the *Cole-pits* themſelves, they ſometimes hear the noiſe of a *pack* of *hounds* in the *Air*, which has happened ſo frequently that they have got a name for them, calling them *Gabriels hounds*, though the more ſober and judicious take them only to be *Wild-geeſe*, making this noiſe in their *flight*; which perhaps may be probable enough, for upon conſulting the *Ornithologiſts* I find them one of the gregarious *migratory* kind, to fly from *Country* to *Country* in the night, *noctu trajiciunt* ſays *Aldrovandus* of them [x], and to be very *obſtreperous* either when wearyed with flying, or their order is broken, they flying *ordine literato* after the manner of *Cranes*.

45. And this perhaps may be the *Muſick* that was heard in the *Air* by *Francis Aldridg* of *Hammerwich* a ſober perſon about two in the morning near *Michaelmas* An. 1668. though he deſcribed it to be a ſort of *whiſtling* in the *Air*, and the tune more melodious to him than any he ever heard in his life time, before or ſince; it being performed he ſaid (as he judged) by ſome *winged* creatures, for he could hear their *wings* beat the *Air*, though he could not

[w] *Acts* 28. v. 11. [x] *Ulyſſ. Aldrovandi Ornithologiæ* Lib. 19. cap. 1.

ſee any thing by reaſon of the darkneſs: Though ſome will needs have it a conſort of *Angels* tranſporting ſome bleſſed Soul that expired hereabout at that time, from *grace* to *glory*, haveing the unqueſtionable Teſtimony of St. *Auguſtin*, *Nicephorus*, *Gregory* the *great*, and divers others, that ſuch things have happened; for he ſayd they ſeemed to take the *tune* from one another, as if they bore different *parts* in the ſame *Antiphone* for a quarter of an hour together; much after the ſame manner as *Johannes Herbinius* reports it happen'd upon the death of *Chriſtopher Sueßenbach Paſtor* of *Bicine* in *Sileſia*, where ſuch a *Conſort* was heard alſo for a quarter of an hour together, all the *Town* over; ſome thinking it in the *Tower* of the Church, others in the *Town-houſe*, others upon the *Walls*; nay ſo diſtinctly was it heard, that the *Organiſt* of the *Town* being preſent, attempted to *prick* it down as a celeſtial pattern for all *Church Muſick*, but all to no purpoſe, it ſo far tranſcended his skill[y].

46. More common are the noiſes of *Storms* and *Tempeſts* whether of *Hail*, *Rain*, or *Wind*, though ſometimes too, theſe happen to be very extraordinary, as at *Chebſey* the Sunday before St. *James* tide *An.* 1659. there fell a ſtorm of *Hail*, the ſtones near as big as *pullets eggs*, which beat the young *apples* and *leaves* from the *trees*, and the *Cabbage leaves* from the *ſtalks* ſo that they appeared naked; nay ſo violent was it that it raiſed a *ſteam* in the *ſtreet* ſo thick that they could not ſee croſs it; and yet falling *perpendicular* it broke none of their *windows*; as did another ſtorme of Hail that on *June* 16. *An.* 1676. fell at the Village of *Dunſtall* in the Pariſh of *Tatenhill*, which as I was informed by my worthy friend Mr. *John Bott* alſo cut the *ſtalks* of the *Wheat* and *Barley* (then in *ſpindle*) quite aſunder, and ſo the very *graſs* it ſelf; the *ſtones* being ſome of them near four inches about, and moſt of them of unequal various figures. It ſpoiled alſo the *Peas* that were then upon the ground, yet they came ſo well again as to be fit for *fodder*; the Barley alſo ſprang again ſo well that they had little leſs than they expected, only ſome of it was lighter and not ſo fit for *Mault*: Both which *ſtormes* were but of ſmall extent, the *former* of the two being circumſcribed every way within a *furlong* of the *Towne*; and the *latter* (as appear'd by the miſchief it did) not above a quarter of a mile broad; and about a mile, or a mile and ½ long.

47. Hither alſo muſt be referr'd all unuſual ſorts of *Rain*, whereof the Ancients have tranſmitted to us ſome very prodigious ones, as of *Milk*, *Blood*, *Fleſh*, *Iron*, *Wool*, *Tiles*, *bricks*, and *great Stones*[z]; to which *Munſter*, and *others* add *Rats*, *Mice* *, and *Frogs*, the lat-

[y] *Joh. Herbinji de Cryptis Kijovienſibus* cap. 6. §. 8. com. 7. [z] *Plinii ſecundi Nat. Hiſt.* Lib. 2. cap. 56. 58. * *Vid. Olaum Wormium, Muſei.* Lib. 3. cap. 23

ter

ter whereof ha's been thought by ſome to have happen'd in this *County* at the Pariſh of *Tixall*, at the houſe of the right Honorable *Walter* Lord *Aſton*, and more eſpecially about the *Bowling-green*, where after a ſhowre of *Rain* they have appear'd ſo thick, that it has been found difficult not to *tread* on them in *walking*: Nor will it ſuffice to ſay that they came out of their *holes* where they lay hid before, upon taſt of the ſweetneſs of the celeſtial diſtillation as ſome have fancied; for as I was told by that ſeverely inquiſitive *Gent.* the Worſhipful *Walter Chetwynd* of *Ingeſtre* Eſq; a near neighbour to the place, they have been ſometimes found in great numbers upon the *Leds* of the ſtately *Gate-Houſe* there; whither how they ſhould be brought otherwiſe, ha's been thought equally ſtrange, as that they ſhould come thither by *rain*; it being very improbable that they ſhould either crawle up the *walls*, or leap up the *ſtairs* (could they come at them) they being always but *ſmall*, and all of a *Size*; which too ſeems to imply that theſe are not produced in the ordinary courſe of *Nature*, for then we ſhould have had them of different *ſizes*, according as the *Spawne* came to perfection ſooner or later; ſo that *Cardan*'s opinion ſeems almoſt neceſſary to be embraced, that the *Spawn* or *Seed* of *Frogs* may be either blowne from the tops of *Mountains*, or drawn up with the *vapours* out of uliginous places, and be brought to perfection in the *Clouds*, and diſcharged thence in *Showers*.

48. And indeed I think we muſt have acquieſt in it, but that the ſame difficulty ſeems to preſs this opinion, as the former; for why ſhould they not fall from the *Clouds*, as well as come forth of their *caverns*, in different *ſizes*? Beſides in all likelyhood we ſhould find them all bruiſed againſt the ground, trees, or building, and half dead with their fall, ſhould they come from thence; than which nothing leſs: Much rather therefore ſhould I think them produced upon the ſurface of the *earth*, and tops of *houſes* where they are firſt found, by a *fermentation* excited in the *duſt* (which in ſome places may have a peculiar diſpoſition for it) by the fall and commixtion of *rain water* with it, in hot ſoultry weather. The ingenious Mr. *Bohun* Fellow of *New-Coll. Oxon*, acquaints us that Sr. *Thomas Roe* in his *Eaſt-India* Voyage met with a ſort of *rain* that accompanies the *Tornado blaſts* of that *Country*, ſo noiſome that it made their cloaths who ſtirred much in it, to ſtink upon their backs; and that the *water* of thoſe hot and unwholſe ſhowers, would preſently bring forth *worms*, and other offenſive *Animals*[a]. And we are told that the *rain* that falls in the plain called *Magotti Savanna* in the Iſle of *Jamaica*, as it ſettles upon

[a] *R. Bohun's diſcourſe concerning Winds*: pag. 240. 241.

the

the *ſeams* of any *Garment* (where duſt, if any where, uſually lodges) turns in half an hour to *Maggots* [b].

49. Now if ſome rains or earths be diſpoſed for the production of *worms* and *Maggots*, why may not others for *frogs*? eſpecially ſince the *opinion* ſeems to be ſtrengthen'd by the concurrent *Teſtimonies* of *Scaliger* and *Fallopius*: *Nos complutam terram ſola aqua* (ſays the former) *ſine ranis, Gyrinulis tamen poſt ſemihoram ſcatere totam vidimus, i. e.* that he had ſeen the ground wet only with *water* at firſt, and no *frogs* appearing, which yet within half an hour has abounded with imperfect *ones* [c]: To whom agrees the latter. *vidi inquit aliquando cecidiſſe guttas quaſdam magnas in pulverem, & ſtatim abortas eſſe ranulas*, that he had ſometimes ſeen great drops of *water* fall into *duſt*, and preſently after *frogs* to ſpring thence [d]. Which ſolves all the *difficulties* of their being found on the *tops* of houſes, as well as *below* on the ground, that they are all of a *ſize*, *&c*, it being allowable enough, that an agreable *duſt* for ſuch a purpoſe may be carryed with the *wind*, or otherwiſe, to ſuch *high* places, where meeting with *rain* alſo well diſpoſed for the ſame purpoſe, may produce ſuch *animals* there, as well as below. And thus I ſuppoſe it comes to paſs for the moſt part, that ſome *places* on a ſudden are thus infeſted with *frogs*; I ſay for the moſt part, for if it be true what the ingenious *Author* of *Mercurius Centralis* delivers to us *viz.* that there is one at this time living, that walking through a low *mariſh* ground in *England* a *foggy* morning had his *hat* almoſt covered with little *frogs* that fell on it as he walked [e]; we muſt allow *Cardan's* opinion at leaſt ſometimes to be true.

50. As to ſuch *rains* as are uſual and frequent amongſt us, I met with nothing obſervable concerning them, but an uncommon *prognoſtick* when they ſhould happen, communicated to me by the learned and ingenious *Gent. Edwin Skrymſher* of *Aqualat* Eſq; who had it from one *Samuel Taylor* a perſon belonging to the *Severne*, but imployed by Mr. *Skrymſher* in making his *boats* for the large, deep, and moſt pleaſant *Meer* that ſtretches it ſelf before his *houſe* for above a mile in length; who foretold them by the *Winds backing* to the *Sun* as he call'd it, *i. e.* oppoſing its courſe; *viz.* the *Sun* moving from *Eaſt* by *South* to *Weſt* and *North* and ſo to *Eaſt* again; and the *wind* from *Weſt* by *South* to *Eaſt* and *North* and ſo to *Weſt* again: *Ex. gr.* ſuppoſe the *wind* now in the *North*, ſhift thence to the *Eaſt* agreeable to the *Suns* courſe, it moſt times proves fair; but if it *back* to the *Sun* and ſhift *Weſterly* and thence *Southerly*, *&c.* ſo as to oppoſe its motion, it ſeldom fails of

[b] *Philoſoph. Tranſact.* Numb. 27. p. 500. [c] *Jul. Scaligeri de Subtilitat.* Lib. 15. *Exercit.* 191. [d] *Cabr. Fallopii Tract. de Metall.* cap. 9. [e] *Mercurius Centralis* p. 24, 25.

bringing *rain**; and ſo in all the other *Cardinal* and *intermediat* points: The reaſon whereof may be, that the *Sun* by the ſame power by which at firſt it raiſed the *vapours* (of which *Clouds* conſiſt) now drawing them along with it from *Eaſt* to *VVeſt*, and the *VVeſterly* winds compreſſing the contrary way, does ſo condenſe the *ſpungy* parts of them upon meeting in the *South*, that thereby they become *aqueous*, too weighty for the *Sun* any longer to ſuſtain, to *preponderate* the ſubjacent *Air*, and ſo to deſcend in ſhowers or rain: whereas when the *winds* accompany the motion of the *Sun* impreſt upon the *Clouds*, as they doe from the *Eaſt*, they attenuat and diſperſe them, and force a *ſerenity*; which ſeems to be the thing that *Virgil* intends by his *Juppiter Denſans* and *Rarefaciens*.

——————— Et Juppiter humidus Auſtris
Denſat erant quæ rara modo, & quæ denſa relaxat †.

51. Much more accurat and certain was the ſame *Samuel Taylor* in predicting the *winds*, than the *rains* that attend them, though even in this too he made uſe of the *Clouds* themſelves, which when ever he perceived to riſe in the *form* of the letter V, jagg'd on each ſide, and therefore called by the *water-men* the *Harts-head*; he forthwith concluded infallibly that the next point of the *Compaſs* to which the *wind* ſhould ſhift, would be either the oppoſite one to the moſt *patulous* part of the V or *Harts-head* (which though happens but ſeldom) or the *point* to which the *acute* angle of the ſame *Harts-head* ſeems neareſt to direct it ſelf, and this moſt frequently happens, always one of the two; which I am told is a *truth* that no *water-man* whatever that ſailes the *Severne* will call into queſtion: And indeed I do not doubt but the latter of the two muſt needs be moſt frequent, ſince we ſee in *Æolipiles*, *VVinde-Guns* and all other *exploſions* of *Air*, that it ſtill ſpreads as it proceeds from the *terminus à quo*; well therefore may it be concluded that the *wind* muſt proceed from that *quarter*, whence the *Clouds* appear more *patulous* and open; as the *Ancients* obſerved it in *Halo's*, which if intire and well defined argued a calm ſeaſon, but if rent or broken on any ſide, they expected a *wind* from that point of the *Heavens*, on which the *Cirque* of the *Halo* was interrupted: *Inde ventum Nautici expectant, unde contextus Coronæ perit*, ſays *Senecaꝰ*, that the Mariners expected a *wind* from that *quarter* of the *world* on which the parts of the *Circle* were diſcontinued: with whom agrees my Lord *Verulam*, who amongſt his *prognoſticks* numbering this, *quâ parte is Circulus ſe aperuerit, expe-*

* *Vid. Camdens Britannia in Staffordſh. and* chap. 2. §. 15. *of this Hiſtory.* † *Pub. Virgilii Georgic.* Lib. 1. v. 418. ꝰ *L. An. Senecæ Nat. Queſt.* Lib. 1. cap. 2.

etetur

ſtetur ventus ſays he [h], let the *wind* be expected from that point of the *Horizontal* arch, where the *Circle* opens it ſelf.

52. Which perhaps indeed may be ſome of the moſt certain *prognoſticks* we can hope for of *winds*, but then we muſt reſtrain them to ſuch as have their *origin* in the *middle Region*, from the rarefaction of *vapors* by the *Sun*, either before or after their coalition into *Clouds*: which *rarefaction* making a greater *repletion*, and conſequently a *protruſion* that way where the *Medium* is moſt yeilding, cauſes a *wind* from ſuch or ſuch a peculiar *point* of the *Compaſs* rather than any other, and is certainly ſhewn by the opening of the more looſe and floating *Clouds* (thoſe whence we expect *wind* being not ſo *denſe* or *opacous* as thoſe pregnant with *ſhowers*) which are ſenſible of the *impreſſion* for ſome time, before the *Air* here below is aſſimulated to the motion begun at ſo great a diſtance; where nothing intervening to controul or interrupt its courſe, it is propagated in a right line, and is much more certain than any *wind* generated either from the *Æolian caverns* of the *Earth*, or the *lower Region*, which are obnoxious in great meaſure to the ſituation of the *Countries* through which they paſs, making *Mæanders*, *deflections* and undergoing various *repercuſſions*, according as they meet with *Forreſts*, *Promontories*, *Mountains*, or winding *Valleys* betwixt them, in their way; though indeed in the wide *Seas*, and open level *Countries*, theſe *winds* are near as *regular*, as thoſe that blow *aloft*; as they really would be every where, were the *terraqueous Globe* of a uniform *ſuperficies*.

53. Nor heard I of any thing more relating to *winds*, but that not long ſince betwixt *Offley-hay* and *Slindon*, there happen'd a *Typhon* or *Tornado-wind*, which though not above forty yards broad (as appeared by the miſchief it did) or extending it ſelf in length above three or four *Miles*, yet was ſo powerful as it paſs't through a *Coppice* near Sr. *John Perſhal*'s houſe of *great Sugnal* that it tore up the greateſt Okes by the roots and made as it were a *Viſta* through it, as was ſhewed me by the courteous and obliging *Gent.* Mr. *Boſvile* of *Byanna*, which I take to have been done by a *dip* of *wind*, expreſs't obliquely from a narrow paſſage betwixt two *Clouds* as in *Tab.* 1. fig. 10. which meeting with ſome *croſs wind* or denſer part of the *Atmoſphere* at A, was thrown violently towards the ground at B which take for *Offley-hay*, was ſtrongeſt at C which ſuppoſe to be *Sugnal*, and roſe again at D which may paſs for *Slindon*, and ſo mounted into the *Air* again to E, out of all diſtance for doing any further harm, curleing it ſelf into a Helix after the manner of *Tornado*'s, as Mr. *Bohun* in his diſcourſe of the *Origin* of *Winds* has in-

[h] *Hiſt. de Ventis inter prognoſtica ad Artic.* 32. §. 8.

geniously expreſs't it: whence 'tis eaſy to collect both the reaſon of the *narrowneſs* and *brevity* of this *wind*, and why the greateſt force muſt be needs in the *middle*. As alſo of the narrow and ſhort ſtorm of Hail that happen'd at *Dunſtal*, mention'd §. 46. of this Chapter.

54. And now having ſo long entertained the *Reader* with the *ſerious* and ſometimes *Melancholy* effects, let me refreſh him a little with the *Sports* of *Nature*; ſuch as a new diſcourſe with the *Nymph Echo*, a *Miſtris* notwithſtanding what is diſcover'd in *Oxfordſhire*, yet has new *intrigues*, and muſt farther be courted, before ſhe will throughly be underſtood; not but that I think the diſtribution and admeaſurement of *Echo's* is rightly and fully aſſigned in that *Hiſtory*; but that I have met with ſome here, that though they may all be reduced to ſome one or other of the *ſpecies* there mentioned *, yet differ from them *all* in ſome conſiderable *circumſtances*, by no meanes to be paſt by without *obſervation*: And ſuch is the *Echo* near the *Church* at the pariſh of *Tatenhill*, which will return four or five ſyllables at leaſt, though ſpoken almoſt with as low a voice as we ordinarily uſe in our common diſcourſe; the *object* of which *Echo* or the *Centrum phonocampticum*, is certainly enough the *Tower* of the *Church*, and the place of the *ſpeaker* or *centrum phonicum* an oppoſit Hill due *Weſterly* from it, upon the bank ſide under the Hedg, whence a line being drawn to the *Tower*, directly falls upon it at *right angles*; the diſtance between the two *Centers* being not above 70. yards or thereabout, which is the thing wherein this *Echo* is extraordinary: for whereas *Blancanus* will not admit that any one ſyllable can be return'd clear and diſtinctly under 24. *Geometrical* paces, 120 feet, or 40 yards diſtance from the *object* [k]; and *Merſennus* by no meanes under 69 feet or 23 yards; this returnes a ſyllable in 42 feet or 14 yards. *i. e.* five ſyllables at leaſt in 210 feet or 70 yards accounting modeſtly (for I believe it will returne more if ſpoken quick) which is the moſt by far in ſo little a ſpace, that I ever yet read or heard of.

55. At the ſame *Town* of *Tatenhill* I was told of another by the Reverend Mr. *Maſters Rector* of the place, that near his *Parſonage houſe*, there was once an *Echo* that ſo ſtrangely depended on *Froſty weather*, that it returned an anſwer at no other time: And I was informed by the ingenious *Mr. Miller Vicar* of *Wednesbury* that there is a very diſtinct *Echo* there, when the *wind-mill* windows ſtand open towards the *Church*, otherwiſe none at all, two of the three *windmils* there, anſwering the five *Bells* orderly and diſtinctly, which ſeems to be a cogent argument that though the *Cavities*

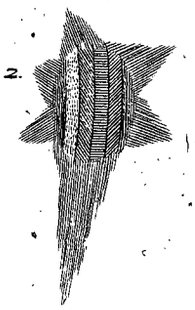
[i] *R. Bohun of Winds.* p. 9. * *Nat. Hiſt. of Oxfordſh.* cap. 1. §. 14. [k] *Joſ. Blancani Echonometria Theorem.* 5.

of

TAB. 1.

ad pag. 28.

1.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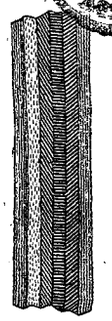

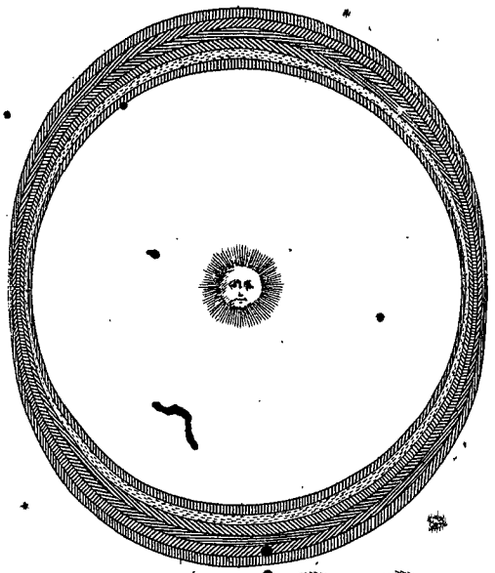

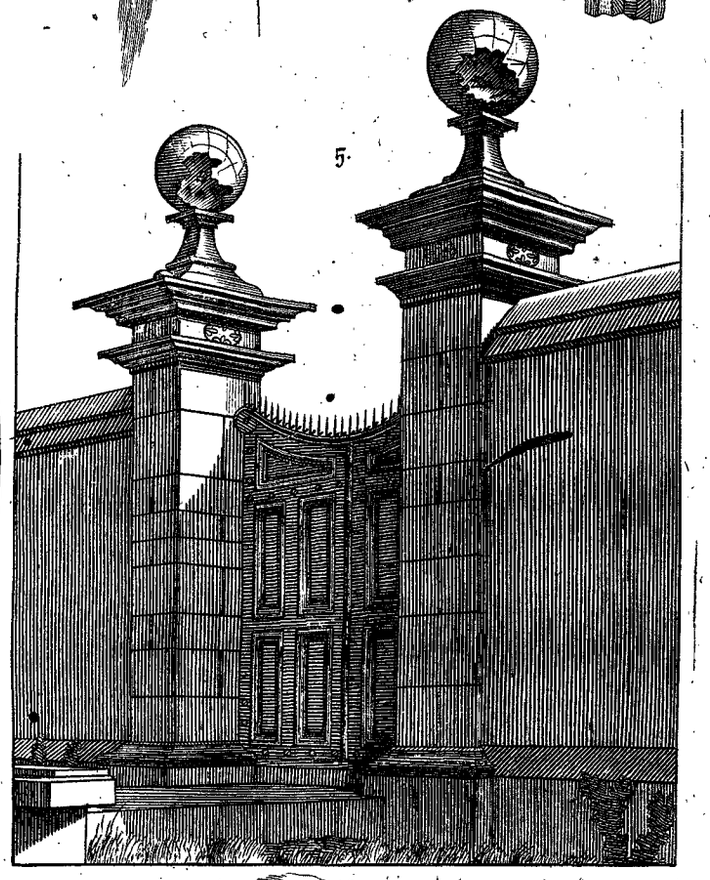
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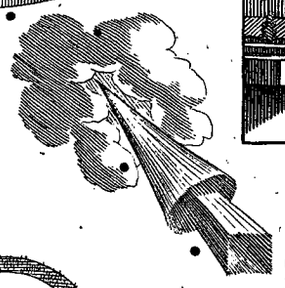
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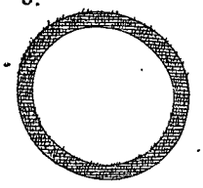
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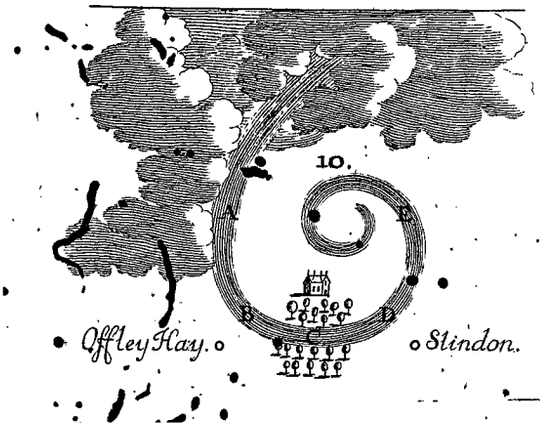

10.

Offley Hay. o o Slindon.

Burgh. Sculp.

of buildings do contribute to *Echo's*, yet they avail but little, unleſs there be *actual* admiſſion of the *voice* into them. Both which are extraordinary in their reſpective *kinds*, but wholy depend upon the authority of the *Relators*, for being at *Tatenhill* in *Auguſt*, and at *Wednesbury* when the *wind* did not ſerve for my purpoſe, I had no opportunity of examining either.

56. Other *Echo's* there are none ſo very different from thoſe of *Oxfordſhire* as the three above mentioned, nor indeed are there any of the ſame *kind*, ſo very conſiderable as that of *Woodſtock*[1]; the beſt polyſyllabical articulat *Echo's* we have in this *County*, are 1. that of *Dunſton* in a field *weſt* of the *Chappel*, where in the path way at due diſtance from it, you may have a return of ſeven or eight ſyllables; and ſo you may 2. From *Elmburſt-Hall* in a *Meddow* to the South-Eaſt of it. But 3. that which comes neareſt to *Woodſtock*, and indeed is the beſt of the kind in the *County*, is that at *Norbury*, *North-eaſterly* from the *Manor* near a little bank under the wood ſide about 80. poles or 440. yards diſtant, which in a *ſtill day* will repeat 10. or a 11. ſyllables diſtinctly, or 12. or 13. if ſpoken quick; the *Object* whereof muſt needs be the *Manor* for there can be none nearer whatever there may be further off, and yet in this, as at *Woodſtock* (however it was at *Tatenhill*) if we take the *Manor* for the *object*, there will go 120 feet or 40 yards to each ſyllable, or if further off (for the *voice* methinks ſeems to paſs by the *Manor*, to the trees on the left hand of it) perhaps twice as much; which inſtructs us we muſt allow a much greater *Latitude* in theſe matters; though of the ſame *kind*, than has hitherto been thought of.

57. But as for *Tautological polyphonous Echo's*, ſuch as return a word or more often repeated from divers objects by *ſimple reflection*, there are as good here, or perhaps better than any in *Oxfordſhire*; there being one at *Beaudeſart* in the little *Park* about the middle of the path that leads from the *pale* to the *Houſe*, that from a treble *object* anſwers diſtinctly three times: And another near *Hampſted* (The ſeat of the much honored and my truly noble Patron, the right worſhipful Sr. *John Wyrley* Kt.) on the bank ſide in a field South-eaſterly from the *houſe*, that from a quadruple *Object*, anſwers as diſtinctly four times, though the *objects* indeed be as *obſcure* as the matter of fact is *plain* and *evident*; which perhaps may be as good an one of this kind, as one ſhall eaſily meet with, all the *objects* and *returnes* being ſtill more *remote*, and *weaker*, than one another; the ſecond than the firſt, the third than the ſecond, and the fourth than the third, and ſo onward; ſo that af-

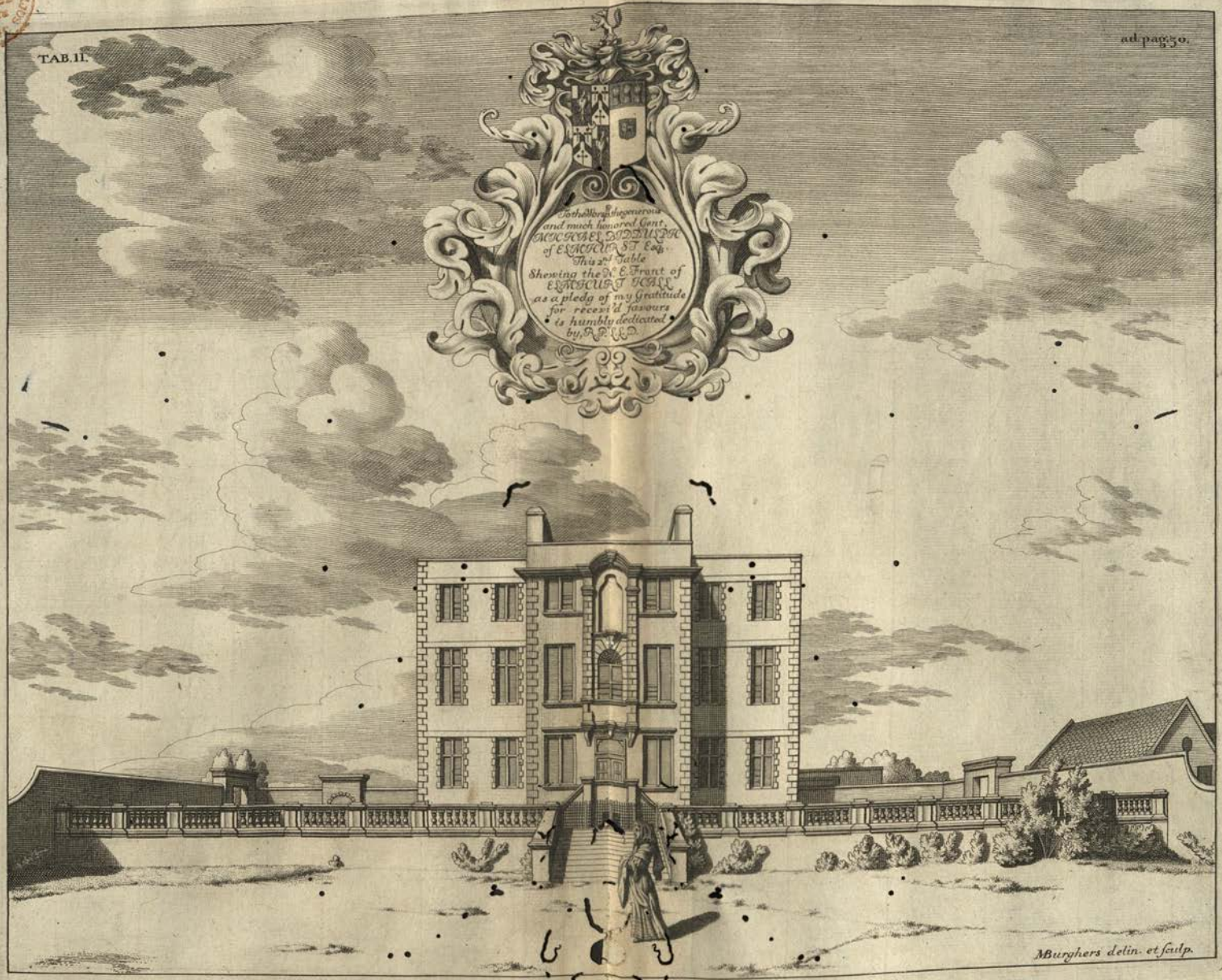
[1] *Nat. Hiſt. of Oxfordſh.* chap. 1. §. 15.

ter *four* returns, the *fift* is moſt commonly out of the *reflex action* of the *voice*.

58. Unleſs in ſuch *Echo's* as have divers *objects* placed ſo near together, and near at hand, that though they ſcarce will admit of a *Diſſyllable*, yet by numerous *reflections* to and froe from one *object* to another, will return a *Hum* or *clap* with the *hands* much more *quick* and frequently, perhaps ſome of them ten or a doſen times or more, the *voice* or *clap* fadeing as it were, or dying away by degrees in a *trembling* manner, rateably to the *remoteneſs* and *weakneſs* of the *reflections*. And ſuch a *tremulous Echo* there is (for I cannot fit it with a better *Epithet*) at *Elmhurſt-Hall* on the *tarras* walk in the *Garden* behind the *houſe*, where the various *windings* and *angles* of the *walls*, return a *hum* or *clap* with the *hands* (the weather being calm) ten or a doſen times, ſo thick and cloſe that it admits of nothing *articulat* unleſs we may account a *monoſyllable* ſo. Which was ſhewn me by the Worſhipful *Michael Biddulph* Eſq; the *Proprietor* of the *place*, whoſe *favours* have been ſo *ſignal* in promoting this *work*, that I could do no leſs in gratitude than repreſent the *Houſe* in *Sculpture Tab.* 2. it being one of the chief *ſeats* of the *Family*, and as uniform, ſplendid, and commodious a *building* as moſt in the *County*.

59. And theſe are all the *Echo's* I thought worthy *notice*, whereof I have only given a *ſummary* diſcourſe relating chiefly to matter of *fact*, the *Philoſophy* of them having been already laid down in my *Hiſtory* of *Oxfordſhire* [m], whither for brevity ſake I refer the *Reader* leaſt I ſhould ſeem as *Tautological* as ſome of the *Echo's*: Nor have I more to add of *Aerial matters* but a very odd *experiment* relating to *ſounds*, which as I was inform'd by the learned and ingenious the Worſhipful *William Chetwynd* of *Rugeley* Eſq; is conſtantly practiſed amongſt the *Operators* in *Iron*, who carrying on their *work* day and night, and ſleeping by turns, notwithſtanding the *great noiſe* of the *water* and *Hammers*, take their *reſt* as quietly and indiſturb'd as other *Mortalls*, yet when their time allowed for *ſleep* is expired, and there is occaſion for them, are all *awakened* with a little blow (or *tanck*) upon a pair of their *tongues* (which is the common means they uſe for that purpoſe) though a *noiſe* incomparably *leſs*, than what was made in the *Mill* before, during the time of their *reſt*: Whence we may infallibly conclude that *great noiſes* if they are *cuſtomary* and *conſtant* do not *affect* ſo much as *leſſer noiſes* provided they are *ſudden* and *unuſual*; nor ſometimes ſo much as *no noiſe* at all; the abſolute *privation* of a *cuſtomary noiſe* being as *diſturbing* as an *unuſual* one: as was atteſted to me by a Reverend *Clergyman* who living next door to a *Braſier*, though indeed

[m] *Nat. Hiſt. of Oxfordſh.* chap. 1. *from* §. 14. *to* §. 31.


TAB. II.
ad pag. 30.
To the Worship the generous
and much honored Gent.
MICHAEL DIDDULPH
of ELMHURST Esq.
This 2nd Table
Shewing the N. E. Front of
ELMHURST HALL
as a pledg of my Gratitude
for recevi'd favours
is humbly dedicated
by, R. P. LL. D.
M Burghers delin. et sculp.

indeed he was diſturb'd at firſt, yet the *noiſe* at laſt grew ſo *agreeable* to him, that removing after to a *Parſonage* in the *Country*, he wanted his *Braſier* ſo much, that he proteſted to me he could not *ſteddily* apply himſelf to his *buſineſs* till after he had been there a conſiderable time. And as it is in *ſounds*, ſo it is in *motion*, the abſolute *privation* whereof, if it have been (though but a ſmall time) *conſtant*, will *diſturb* ones *quiet*, as I have found it by people *aſleep* in a *Coach*, who during the *motion* notwithſtanding the *jolts* and *rubs*, have continued their *reſt* but upon the Coaches *ſtoping* though gradually done, have all preſently *awakened*.

60. To conclude, theſe are all the *obſervations* I could make my *ſelf*, or hear of from *others* relating to the *Heavens* and *Air*, and to this *County*; unleſs I ſhould have taken upon me to have given ſome account of the late prodigious *Comet* in *Dec.* 80. which I might indeed have done from the accurat *obſervations* of my worthy *Friend* the worſhipful *Francis Wolferſtan* of *Statfold* Eſq; but having lodged them in a much better hand than my owne for that purpoſe, and the *Comet* it ſelf relating as well to other *Countries* and *Kingdoms* as *this*, I chooſe rather to paſs it by, only taking notice that they generally happen in *Winter*; upon or after conſiderable *Froſts*; and (with *Gaffarel*) that they occaſion great *droughts*, which inflame Mens blood and drive them into *Frenſies*[n] (witneſs this following year 81) and as my Lord *Bacon* well obſerves, that thoſe *droughts* bring an open *beginning* of *winter*, the former *heat* ſtill bearing the *ſway*, and yet hindering a ſufficient multiplication of vapours[o]. All which having happen'd preciſely after *this*, will I hope procure our *obſervation* of them, after another *Comet*.

[n] *J. Gaffarel's unheard of Curioſitys* Part. 4. §. 11. [o] *Nat. Hiſt.* Cent. 9. Experim. 814.

CHAP.

CHAP. II.

Of the Waters.

1. THe learned, and therefore truly Noble *Philoſopher*, my Lord *Viſcount St. Albans*, in his *Hiſtory* of Life and Death, or prolongation of Life; as well conſidering the *conſumption* of the body of Man, as *reparation* of it; the one being as much to be *prevented*, as the other *promoted*; in the former of theſe makes the *ambient Air* of eminent concern; ſome ſorts of it being as predatory and waſtful of the body, as others again are comfortable and refreſhing: Whence it is that *Perſons* of plentiful *Eſtates*, that have (as we ſay) the world at will, and are not tyed to a ſingle *Seat*; either build or make choiſe of one for their moſt common reſidence, that is ſituat in a good and wholſome *Air*: where by *Air* they intend not the *ſimple Element* of the *Ancients*, for in this ſenſe all *Air* (if there be any ſuch thing) is equally pure; but that ſomwhat groſſer ſubſtance that immediatly incompaſſes the *terraqueous Globe*, wherein we daily breath, live, and have our being; which is commonly fill'd with all ſorts of *Exhalations*, and is comparatively good or bad, healthy or otherwiſe; as it partakes more or leſs, of wholſome or noxious, *vapors* or *fumes*; exhaled either from quick liveing ſtreams, or ſtagnant pooles and uliginous boggs; from dry wholſome Soils, or mineral Earths. Which ſeeming indeed the more immediat cauſes of *ſickneſs* or *health* than the pure *Air*, that being only the vehicle of diſeaſes, and not fundamentally good or bad, but by participation, as was hinted iu *Oxfordſhire*[a]; 'tis plain that the conſideration of the *health* of this *County*, rather belongs to this *place*, and the following *Chapter*, than to the former of *Air*.

2. But that the *Reader* may not only be amuſed with *generalls*, let us treat of this matter more *diſtinctly* than uſual, and ſtrictly examin whether this *Air* we breath in, do indeed ſo much affect the *body* of *Man* as is commonly pretended; and if ſo, which it is that comforteth and conſerveth it moſt, and which moſt preyeth upon it, ſo as to haſten its conſumption; that certainly being to be eſteemed the moſt *healthy*, that prolongeth; and that the moſt *unhealthy*, that abridgeth its duration: Wherein I ſhall not need to trouble the *Reader* with any of the nice *Experiments* of the *Air-Pump*, whereof ſome not unfitly might have been reduced to this

[a] *Nat. Hiſt. of Oxfordſh.* chap. 1. § 32.

ſubject

ſubject; nor with a profound explication of the *flammula Cordis*, or what ever elſe it is that continually gives *accenſion* to our *blood*, and is cheriſh't by the gentle refocillations of the *Air*: It being ſufficient for my purpoſe, and evident even to *rural Obſervators*; firſt that the *Air*, impregnated with *vapors* and *fumes* (ſuch as is the *Atmoſphere* wherein we breath) doth ſenſibly affect the *body* of *Man*; witneſs the common *fumigations* made in *hyſterical diſeaſes* to recall the *Spirits*, and the too too common *Experiment* of *Drunkenneſs*; with which no queſtion its more inartificial operations bear ſome proportion, though they are not ſo ſenſible.

3. It being plain then that the *Air* as it may be variouſly qualifyed does affect the *Spirits* and *humors*, and conſequently the whole *Craſis* of the body: it remains ſecondly that we ſhew which *Airs* they be, that moſt refreſh and preſerve it; and on the contrary which prey upon it, ſo as either to conſume it gradually, or deſtroy it on a ſudden: for the clearer diſquiſition of which matter I muſt premiſe ſome *poſtulata*, which I need not to doubt (I think) but will be eaſily granted, ſince they are ſuch only as are univerſally agreed on: As firſt that the *blood* principally, and other *humors*; are the *ſubjectum in quo*, or vehicle of the *ſpirits* by which the *Animal operations* of the *body* are performed; and 2. that the more the *ſpirits*, *flammula*, or *heat* do prey upon the *humors*, or the *humors* oppreſs the *ſpirits*, ſo much the ſhorter is the continuance of that *body*; and that therefore 3. in order to a laſting duration, the *ſpirits* ought to be kept in ſuch a moderate temper, that (as the Lord *Bacon* well obſerves [b]) they ſhould be in their *ſubſtance*; denſe, not rare: in *Quantity*; ſufficient for the offices of life, not redundant or turgid: in *heat*; ſtrong, not eager: in *motion*; ſedate, not fluttering and unequal: And 4. that the *humors* ſhould alſo be moderatly denſe; not thick, or too fluid: ſufficient; and not multiplyed to exceſs, ſo as either to clog or extinguiſh the *ſpirits*: all which being granted (and I think no body will deny them) it will naturally follow

4. That *Air* too much *heated* either by the reflex beams of the *Sun*, or by *Mineral fumes* (above the heat of the ambient Air of the *Clime*) muſt be none of the *healthieſt*: for (to omit the inflamed ſcorching *Air* on the banks of *Euphrates* that ſometimes ſuddenly ſtifles *paſſengers*, and the burning-winds of *Arabia* and *Perſia*, in their *Annals* there call'd *Bad Semum* [c]) this even in *Europe* frequently exalts the *ſpirits* to ſuch a redundancy, that they become eager and violent in their motion, ſo as to occaſion *Feavors*, *Frenſies*, *Calentures*; which do not ſip, but rather carouſe upon

[b] *Hiſt. of Life and Death, Intent.* 1. *Operat.* 1. Numb. 10. [c] *Bohuns diſc. of the Origine of Winds.* p. 177, 178, 180.

the *juices*, till at length they are all exhauſted, and the *body* brought to a final *Arefaction*: Or at leaſt ſo opens the *pores*, and rarefies the *ſpirits* that ſome of them fly away, which thickens the *blood* and *humors* by a ſort of *Evaporation*, and ſo gradually *deſiccates* them, and at length brings the body to an early old Age, as it happens in *Africa* amongſt the *Negroes*, whoſe lives, ſays *Leo*, are are very ſhort [d], their *bodies* undergoing through the heat of their *Clime* ſo quick an *arefaction*, that as *Creſcentienſis* reports, they are old at thirty [e]. To prevent theſe *depredations* of over heated *Air*, even in this *temperat Zone*, the *Ancients* were ſo careful, that they declined not either the trouble or charge, of anointing their bodies all over with *Oile*, thereby filling up the *pores*, and preventing both the flight of the *ſpirits*, and all manner of other *injuries* from the external *Air*.

5. Thus *Pollio Romulus* (and *Johannes de temporibus*, as my Lord *Verulam* alſo acquaints us [f],) who was above a *hundred years* old, preſerved it ſeems his body to that extream *old Age*; for being ask't by *Auguſtus* (who then lodg'd at his houſe) what means he had uſed to maintain that *vigor* of body and mind, he ſaw, he enjoy'd; anſwer'd *intus mulſo, foris oleo* [g]; *i. e.* that he uſed *Metheglin* within, and *Oile* without: which, ſays *Roger Bacon* upon the place, in the *MS. Preface* before his book *de Retardatione Senectutis* (which was never printed with the book it ſelfe) was an *Oile* mentioned in the Chapter *de his quæ naturalem virtutem excitant*, whither I refer the *Reader* for ſatisfaction about it [h]. The ſame *Roger Bacon* alſo further acquaints us that a certain *Britiſh Lady* whom he calls *Dominam de Tormeri* [i] found an *oyntment* wherewith her *Woodward* having anointed himſelf all but the ſoles of his feet, lived *three hundred years* without any pain but in his feet [k]. The ancient *Britans* painted their bodies with *woad* and were exceeding long lived; and ſome have thought the *Picts* had their name from hence; 'tis certain the *Braſilians* paint themſelves at this day, and are very long liv'd; as if *painting* did preſerve the living body, as *oile colours* and *varniſh* do dead wood and Iron.

6. Yet much worſe is this *Air* if both *heated* by the *Sun*, and fill'd with noiſom ſtinking *vapors*, exhaled from ſtagnant *waters*, *Moores* or *Boggs*, nothing more quickly or certainly inducing *putrefaction* than the concurrent operations of exceſſive *heat* and *moiſture*; the former procuring a more eaſy acceſs for the *vapors*

[d] *Leo Afer his deſcription of Africa.* Lib. 1. [e] *Petri Creſcentienſis de Agricultura*, Lib. 1. cap. 5. [f] *Hiſt. of Life and Death. Intent.* 1. *Operat* 2. Numb. 13. [g] *C. Plinii ſecundi Nat. Hiſt.* Lib. 22. cap. 24. [h] *In Præfat. ad Libellum de Retardatione ſenect. MS. in Bib. Bodl.* [i] *Alias de Nemore in Epiſt. Baconi ad Pariſienſem*, cap. 7. [k] *In Libello, de mirabili potestate Artis & Naturæ, dicto.*

into

TAB. III
ad pag. 34.
IE
To the right Hon.
EDWARD Lord WARD
Baron of BIRMINGHAM
Heir apparent of ye Barony of DUDLEY
of DUDLEY CASTLE.
This 3. Table
being the E.S.E. Prospect
of the said CASTLE,
in Testimony of his Gratitude
is humbly dedicated by
B.P. LL.D.
M Burghers delin. et sculp.

into the *blood*, by attenuating and ſeparating the parts; and the latter at the ſame time advanceing the *humors* to ſo diſproportionate a *bulk*, that the *ſpirits* being oppreſt, are thereby render'd unable to actuat them with that briskneſs, as otherwiſe they would have done: ſo that the *blood* circulating but ſlow and heavily, the *Inhabitants* of ſuch *Air* become generally ſtupid, clowniſh, moroſe, like the *Bæotians* in *Horace*, who by reaſon of the *foggy Air* they lived in, were of a dull, melancholly, unpleaſant converſation.

Bæotum in craſſo jurares aere natum[l].

whereas thoſe of *Attica*, where the *Air* was coole and ſerene, were *Men* of moſt acute, refined parts, and pleaſant behaviour: ſo true is that of *Plato* κατὰ τὺς ὑραιὺς τόπυς χράσιν ἠθῶν γενέσθαι, that the *manners* of *Men* are agreeable to the *Air* they live in [m].

7. But the effects of an *ill Clime* upon Mens *carriage* and *wits*, are not near ſo deplorable as upon the *Conſtitutions* and *temper* of their *bodies*, which are not only alter'd but frequently deſtroyed by it; ſome of theſe *Fenns* and *boggy places* ſending forth ſuch noiſom contagious ſmells, from crude *ſulphurs*, and filling the *Air* with ſuch unagreeable *Salts*, that the *humors* thereby if not abſolutely poiſon'd, are at leaſt incorrigibly diſtemper'd, either by *coagulation* or *thinning* them too much, whence *Scurvies*, *Coughs*, *Catarrhs* &c. Others, ſays *Varro*, produce a ſort of *Animals*, ſo ſmall that they are inviſible, and are ſuckt in through the *mouth* and *noſtrils*, which cauſe grievous obſtinate incurable *diſeaſes* [n]: And indeed all ſorts of ſuch *miſty foggy air*, bring ſo much of *moiſture* and *viſcoſity* with them, and are ſo altogether unfit for the office of carrying off the ἀπόῤῥοιαι or *fuligines* from the *Lungs* that ariſe from the *accenſion* of the *blood*; that they rather check and return them upon the *juices* again, and ſo clog and ſtifle the *motions* of the *ſpirits*, that they are at length quite *ſuffocated*; whence follows a *ſtagnation* of the *humors*, and ſo *diſſolution* and *corruption* both immediatly ſucceed. What then muſt I do, ſays *Fundanius* in *Varro*, if my *lot* be fallen into ſuch a *Heritage*, that I cannot avoid ſuch an unwholſome *air*? To this, ſays *Agrius*, I can readily anſwer, *vendas quot aſſibus poſſis, & ſi neque id, relinquas*; ſell it, ſays he, for as much as thou canſt, or if thou canſt not, rather leave thy *houſe*, than prejudice thy *health* [o].

8. Yet much worſe is it ſtill if this *adulterated air*, whether from *vapors* or *fumes*, be concluded betwixt *hills* in a *low ſituation*, or a place cloſe beſet with *thick woods* or *groves*; which though perhaps they may be reckon'd but as *ſecundary cauſes* of the *unhealthineſs* of a *Country*, yet they ſometimes happen to be more *pre-*

[l] *Q. Horatii Flac. Epiſt.* Lib. 2 v. 244. [m] *In Timæo.* [n] *M. Terentii Varronis de re Ruſtica*, Lib. 1. cap. 12. [o] *Ibidem.*

judicial than the *primary ones* could have possibly been without them; such *Foggs* and *Steams* stagnating in the *valleys* and amongst *trees*, and heating much more there than in any *plain*, the rays of the *Sun* being contracted and strengthened in these *hollowes*, much after the manner we see they are by a *Concave glass*; whereas if either happen in an *open Country*, or upon riseing ground, without *woods* or *groves* within a competent distance, there is seldom such a *calme*, but that the *Wind* at least will ventilate, if not strongly disperse them, so that they can be little prejudicial to the adjacent *Inhabitants*: And therefore says *Petrus Crescentiensis*, *qui loca elegit habitabilia, cognoscere debet quommodo ejus exislit dispositio secundum altitudinem & profunditatem, discooperturam & cooperturam ----- & si sit ventis exposita, aut in terra profunda*[p]. i. e. That whoever makes choise of a *seat*, must be satisfyed how 'tis *situat*, whether on a *Hill* or in a *Vale*; open, or close covered; whether exposed to the *winds*, or in a *deep hollow* Country: whereof which is the better; is determined both by *Varro*[q] and *Baptista Porta*[r], *potius in sublimi loco ædificet, qui quod perflatur, &c.* rather let him build, say they, in a high place that is continually *ventilated*, where if any thing incommode him it will easily be dispersed by the brisk piercing *gales*. Which naturally brings me next

9. To the consideration of that *acute purifying air*, which being neither heated above the usual constitution of the *Clime*, nor fill'd with moist thick slimy *vapors*, but rarify'd by the *Sun* to a useful *serenity*, and sharpened by an agreeable portion of *Niter*, so cooles and cherishes both the *spirits* and *humors* by a gentle *ventilation* (carrying off the *fuligines* arising from the accension of the *blood* whether in the *Lungs* or *Heart*) that both are kept in due temper; neither prevailing, but both mutually preserving each other to a most lasting duration: And this it is we may justly call *healthy Air*, that ha's *heat* enough to cherish that *Platonic flame*[s] in the blood, so as to make it *shine*, but not *burne*; and *moisture* enough to help to conserve that *gentle fire*, but not drown or extinguish it; all which seems most evidently made out to be thus indeed by the Aerial *Noctiluca* of the Honourable Mr. *Boyle*, and by the *solid Phosphorus* of my ingenious Friend *Frederick Slare* M. D. *made for the most part out of Urine, and might as well* (He thinks) have been out of *blood*, could it have been procured in as great quantities, since *Urine* is its Recrement separated by the *Kidneys*; which whenever exposed to the *air* in its ordinary temper (as I saw it in *Nov.* 1681.) only *shines* illustriously, but if

[p] *Pet. Crescentiensis de Agricult.* Lib. 1. cap. 5. [q] *M. Ter. Varronis de re Rustica*, Lib. 1. cap. 12. [r] *J. Bapt. Portæ, Villæ* Lib. 1. cap. 22. [s] *Ignis ille qui φῶς ἢ αὐγὴ, Lumen & splendor nuncupatur, qui lucet, sed non ardet. Plato in Timæo.*

held

held to the fire, breaks out into a violent *flame*, and if immerged into water, is presently *restinguisht*.

10. And this, I say this, is that *subtile refined air*, that refrigerates the *spirits*, that cherishes the *humors*, and gives them both their due *condensation*; neither exalting the one or the other so far, as that the *spirits* either fly away or prey upon the *humors*; or the *humors* overwhelm or drown the *spirits*; that renders *Man* long-liv'd, most healthful and free from all manner of *infirmities* both of body and mind; that keep him sound, lusty, vegete and nimble; and makes him cheerful, quick, witty, subtile, and what not? Which whoever would enjoy in the highest perfection, must ascend the dry gravelly barren hills, and place his *seat* there, as the *Emperor Constantine* advises, χρὴ γᾶν τοὺς οἰκήσεις οἰκοδομεῖσθαι ἐπὶ τῶν ὑψηλοτέρων τόπων εἰς ἀπόψιν καὶ κατασκοπὴν τῆς χωρίας[t]. We ought to build, says he, in *high* places where there is a delicate *prospect*, where one may see all over the *Country*; where the reflected beams of the *Sun* are but of small force, at least not strong enough to make the *air* any thing *predatory* by reason of *heat*; or of *moisture*, upon account of the drought or barrenness. I know

11. *Cato* and *Columella* commend a rich fruitful Soile whereon to place their Villa[u]; but they describe the *Farme*, where indeed the *commodity* is commonly more regarded, than *health*; and not the *Hall* or *Manor* (as the *Gentlemans seat* is usually call'd in this *County*) which ought to be situat, not upon or near the *best Soile* which commonly yields the worst *air*, but on a *dry riseing ground* at least, if not on a *Hill*, where there are no standing *Waters* or *Mines* in the *valleys* below, to occasion *vapors* or *fumes*, nor thick *woods* or *groves* to hinder the *dispersing* them, whenever they do (if at any time) happen, or preclude the pleasure of a far and wide *prospect*. Where by the way, let the *Reader* take notice, that I only exclude *stagnant Waters*, *Mines* in low and close *valleys* and *thick woods*; and not so far mistake me, as if I thought plenty of *waters* and *mines*, or *large woods* and *groves* a dishonour to a *County*; for in these consist both the *pleasures* and *riches* of it; where the *waters* flow from *quick* and *living* springs, the *Mines* are work't on *high* or *open* Countrys, and the *woods* lye dispersed at due distance, and if any thing large, have *lawnes* or *vista's* cut through them; as they are usually found all over this *County*, as shall be shewn of each in their respective places.

12. Though it be true indeed that those places that are situate *highest*, and enjoy the fewest *waters*, *mines* and *woods*, must undoubtedly be the *healthiest*, in proportion as they are free from

[t] *Constantini Cæsaris Pogonati dict.* Γεωπονικῶν Βιβ. β. κεφ. γ. [u] *Columellæ de re Rustica* Lib. 1, cap. 2. *M. Porcii Catonis de re Rustica*, Lib. 1. cap. 1.

one, more, or all of them; Upon which account I take *Swynerton*, the Village of *Beech* and all the *Hill Country* betwixt that and *Trentham* (being void of moſt, if not all of theſe) to be the healthieſt ſpot of Ground in all the *County*, which ſeems amply to be made out by an obſervation they have there, *viz.* that they have three *Chriſtenings* for one *Buryal:* Nor comes the Town of *Wolverhampton* far behind it, being ſituat high and where they have but *four* weak *Springs* to ſupply that large *Town*, which too riſe altogether behind the *Cock-Inn* (ſo that they may be eſteemed but as one) having different names appropriated to their reſpective uſes, as the *Pudding-well*, the *Horſe-well*, the *Waſhing-well*, and the *Meat-well*, from which laſt they fetch all the *water* they uſe for *Meat* or *Drink* all over the *Town* in great leather *Budgets* or *Boraccia's* laid croſs a horſe with a *tunnel* at the top whereby to fill them, ſuch as they uſe much in *Spain*, and ſome other *Towns* in *England* as *York*, *Worceſter*, &c. bringing to the other three, their *Tripes*, *Horſes* and *Linnen.* From which *ſcarcity* of *waters* and *high ſituation* it is, that notwithſtanding the adjacent *Cole-mines* they enjoy a more ſetled *health* than moſt of their *Neighbors*, as breathing a more ſubtile and refined *Air*, and that too ſo lyable to *ventilation* that if at any time *fumes* do ariſe from the *Mines*, they are quickly diſperſt: Whence perhaps it comes to paſs, that the *Plague* ha's ſcarce ever been known in this *place*, but the ſmall *Pox* frequently, both ſignes of *ſalubrity* as ha's been ſhewn in *Oxford-ſhire*[w].

13. To which may be added the Pariſh of *Cannock* (vulgarly *Cank*) and all the dry *hills* and gravelly *plains* of *Cank-wood*, as *Tropically* ſo call'd as *Lucus à non lucendo*, now the *woods* are moſt deſtroyed, and the *Wind* and *Sun* admitted in ſo plentiful a manner between the *Coppices*, which at due diſtance now only crown the *ſummits* of ſome few *hills*, ſuch as *Gentle-Shaw*, *Stile-Cop*, &c. and afford a moſt pleaſant proſpect to *Paſſengers*: the *Plains* or *Hays* below in great part being covered only with the purple odoriferous *Ling*, as that excellent *Poet*, *Mr. Maſters* of *New College* in his *Iter Boreale* is pleaſed to call it, who (having paſt by *Cank* town) thus moſt exquiſitly deſcribes it[x].

Hinc mihi mox ingens Ericetum complet ocellos,
Sylva olim, paſſim Nymphis habitata ferisque:
(Condenſæ quercus, domibus res nata ſtruendis,
Ornandoque foco, & validæ ſpes unica claſſis)
Nunc umbris immiſſa dies; Namque æquore vaſto
Ante, retro, dextra, læva, quo lumina cunque
Verteris, una humili conſurgit vertice planta,

[w] *Nat. Hiſt. of Oxfordſh.* cap. 2. §. 9. [x] *Tho. Maſteri Iter Boreale*, pag. 5.

Purpureoque

Purpureoque Erice tellurem veſtit amictu,
Dum floret, ſuaves & naribus adflat odores:
Hæc ferimus ſaltem amiſſæ ſolatia ſylvæ.

The Pariſh of *Aldridge* in the confines of *Cank* ſeems alſo to partake of the like *dry gravelly* conſtitution, lying *high*, and *ſolo ſicco* as *Hippocrates* would have it[y]; and *Mr. Burton* ſeems to commend the Pariſh of *Hanbury* in the Margin of *Needwood* for ſuch a lofty ſituation[z];

14. both which no doubt enjoy a freſh, pleaſant *air*, though I muſt confeſs I ſhould have liked them conſiderably better, had they been thinner beſet with *trees* and *incloſures*; unleſs the buildings had ſurmounted the tops of them all, ſo as to have been more expoſed to the *ventilations* of the *Air*, as at *Dudley Caſtle* whoſe *magnificent ruins* as well as *habitable part* (built on a lofty rock) notwithſtanding the *ſhrubbs* and *trees* all about it, are mounted ſo high above them all, as not only to afford a moſt *wholſom air*, but a *delicat proſpect* over the *County* below it, as the *Reader* cannot but be ſatisfyed it muſt needs do from the *Sculpture* of it *Tab.* 3. which notwithſtanding its *ruins* (the marks of its *Loyalty* in the late *Civil war*) yet remains the *Seat* of the right Honorable *Edward* Lord *Ward* Baron of *Birmingham*, a perſon of moſt *exemplary fidelity* to his *Prince*, and a moſt *noble encourager* of this *Work*, and is therefore here repreſented wrought off a *Copper plate*, that I might gratefully render his *Lordſhips munificence* as immortal as the *braſs*. Had, I ſay, *Aldridg* or *Hanbury* thus lifted themſelves up above the *trees* and *incloſures*, their *Situations* had certainly been much better; and therefore I much wonder that the obſerving Mr. *Burton* ſhould omit the *Situation* of *Tutbury Caſtle*, being ſo near a *neighbor*, mounted on a *hill* toping all the *trees* and *buildings* near it, and overlooking *Darbyſhire* and all the *Country* round to the *Eaſt*, *Weſt* and *North*, like *Acrocorinthus* the old *Caſtle* of *Corinth*, whence *Greece*, *Peloponneſus*, the *Ionian* and *Ægean* Seas were *ſemel* and *ſimul* at one view to be ſeen. *Abbots, alias Apwood Caſtle* in the Confines of *Shropſhire* has much ſuch another *ſituation*, overlooking that *County* to the *South* and *Weſt* to a vaſt diſtance: But that which excells them all for a *proſpect* is the old *Caſtle hill* above *Beaudeſart*, which is elevated ſo high above all the *Country* near, that it commands the *Horizon* almoſt all round, whence 'tis ſaid may be ſeen the nine ſeveral *Counties* of *Stafford*, *Darby*, *Leiceſter*, *Warwick*, *Worceſter*, *Salop*, *Cheſter*, *Montgomery* and *Flint*.

[y] *Hippocrat.* περὶ ἀέρων, ὑδάτων, τόπων. [z] *Anatomy of Melancholy*, Part. 2. Sect. 2. Memb. 3. *ſub finem.*

15. And

15. And indeed this *County* is full of ſuch *high ſituations* that muſt needs be happy in a *cool, ſerene air*, as *Bentley*, *Bradwal*, *Aulton* and *Stone* Lodges, and many others; but ſuch as theſe moſt commonly having too little *water*, and ſomtimes (in winter) too much *Wind*, for the coldneſs of our *Clime*: Others have thought more expedient to build their Seats ſomwhat lower, ſtill provided on a dry and gravelly Soil, as *Gerards Bromley*, *Trentham*, *Drayton Manor*, &c. of which more in due place: or elſe at moſt but on the *ſides* of *hills*, for the more conveniency of *water* and ſhelter from the *wind* when in ſome *points* of the *Compaſs*, as *Bet[illegible]deſart* and *Ingeſtre-Hall*; which is alſo agreeable to the *Emperor Conſtantines* directions, for ſays he τόποι ὑγιεινότεροι, καὶ οἱ ἐν τοῖς ὄρεσι, καὶ οἱ ἐν τοῖς ἀναπεπταμένοις τόποις πρὸς Βορρᾶν[a]. The moſt *healthy places* are both on the *tops* and *deſcents* of *hills* faceing the *North*, the *winds* from thence blowing *cool* and *dry*, whereas thoſe from the *South* are *hot* and *moiſt*, and therefore *unwholſome*: Yet *Baptiſta Porta* on the contrary will by all means have the *front* of a houſe to ſtand to the *South*[b], to whom agrees *Stephanus* a *Frenchman*, approving eſpecially the *deſcent* of a *hill* to the *South* ot *Southeaſt*, with *trees* to the *North*[c]; which indeed may *both* be true or falſe, according to the different *Clime* for which each *opinion* was calculated, the *Emperors* being moſt agreeable to the *Southern*, and the other to the more frigid *Northern* regions, eſpecially where the *Eaſt* and *South wind* which in other places uſually brew rains, bring fair weather; as Mr. *Camden* obſerves they do in this County, unleſs (as was obſerved *chap.* 1. §. 50.) when the *wind* turns from *Weſt* to *South*.

16. For the *South*, ſays *Porta*, is not every where *unhealthy*[d], but as *Palladius* alſo accounts it, moſt *comfortable* in the *Winter* and cool in the *Summer*, and therefore adviſes, *Totius fabricæ tractus unius lateris longitudine in quo frons erit meridianam partem reſpiciat, in primo angulo excipiens ortum ſolis hyberni, & paululum ab occidente avertatur hyemali; ita proveniet ut per hyemem ſole illuſtretur, & calores ejus æſtate non ſentiat*[e], i. e. that the tract of the whole building all the length of that ſide in which the *front* is deſigned, be placed to the *South*, ſo as at the firſt *corner* or *end* to receive the *rays* of the riſeing *Sun* in *winter*, and that it be turned a little away from the *winter Weſt*; whence it will come to paſs that it ſhall enjoy the *Sun* all *winter*, and the *ſhade* all *Summer*. To which laſt *preſcriptions* there are two *Seats* in this *County*, viz. *Ingeſtre* and *Enfield Halls*, ſo exactly conformable, that neither *Stepha-*

[a] *Conſtantini Cæſaris Pogonati dict.* Γεωπονικῶν Βιϐ. β. κεφ. γ. [b] *Joh. Baptiſt. Portæ, villæ*, Lib. 1. cap. 22. [c] *Prædii ruſtic.* Lib. 1. cap. 4. [d] *Auſter non ubique inſalubris. Ibidem.* [e] *Rutilii Palladii de re Ruſtica*, cap. 8. *de Ædificio.*

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nus or *Palladius* themſelves, had they had the building them, could have poſſibly contrived them more to their own minds; both being ſituat upon *declivities*, *fronting* the *South* and open to the *Eaſt*, and fenced to the *Weſt* (as all agree *buildings* ought to be, the *weſtern* winds being the moſt pernicious of any) with *trees* that are alſo fit for *ſhade* in the *Summer*, and both well *water'd*; which perhaps may be two as agreeable *patterns* for an *Engliſh ſituation*, as can any where be met with.

17. For whatever the *ancients* have written in commendation of the *lofty*, *dry*, and *open ſituations* (which perhaps may be beſt in hotter *climes*) ours in *England* ought neither to be without *trees* for *ſhade*; which may be *Oak*, *Aſh* or *Elm* planted pretty thick and cloſe to the *building* to the *Weſt* and *North*, that they may ſerve too for *ſhelter* againſt the injuries of thoſe *Quarters*; and if it ſhall ſeem good to have any for *walks* or other *ornaments* to the *Eaſt* or *South* they ought to be ſet further off, and had beſt either be *trimm'd Cypreſs* or *Yew*, or beſt of all *Firrs*, theſe being moſt pervious to the *wind*, as at *Ingeſtre Hall*: Nor ought the Engliſh ſituation to be altogether *dry*, but water'd if poſſible with a *quick* and *clear ſtream* as at *Enfield Hall*; wherein theſe two delicat ſeats mutually excell one another: there being little danger of *foggs* riſeing at all, much leſs of their continuance, where the *trees* are planted *ſparſim* and always capable of *ventilations*, and the *Currents* be *ſwift* as they are generally in this *County*. which brings me next to

18. A more cloſe conſideration of *waters*, wherein perhaps it may be expected that I ſhould determin alſo their *goodneſs* and *badneſs*, as before of *Air*; but the healthyneſs and unhealthyneſs of the *Air* depending ſo much upon the *goodneſs* and *badneſs* of the *waters* as has been ſhewn above, it ſeems ſo far to have been performed already, that it may well ſuffice here to add in general (which perhaps may paſs for an *Aphoriſme*) that as that *air* is counted beſt that comes neareſt the pure *Æther*, and that the worſt which is fill'd moſt with *Exhalations* and comes neareſt *water*: ſo that is to be eſteemed the beſt *water* which comes neareſt *air*, and that the worſt which is ſtagnant, muddy, and fill'd with *terreſtrieties*, and comes neareſt *Earth*: In a word, wouldeſt thou have a wholſom *water* indeed for thy common uſe? chooſe that which has neither colour, taſt, or ſmell, from *Salts* or *Sulphurs*, or as little of them as may be; for theſe will ſome way or other affect thy *meats* or *drinks*, or whatever elſe thou employeſt them about, otherwiſe than thou did'ſt intend they ſhould. that is to ſay chooſe thoſe that will receive *heat*, and *coole* ſooner than others; into which a glaſs *Hydrometer* or water-Gage, or any other natant weighty body will *ſink deepeſt*; or which will cauſe leaſt *refraction*; all which argue a freedom from *Salts* and *Sulphure*, where-

with *waters* are ſomtimes ſo highly *ſated*, that an ordinary fire will ſcarce ſtir them; that they will bear an Egg, and much magnify and refract an *object* ſeen through them:

19. Whereas the *waters* that are thin, clear, and void of theſe, and come any thing near the nature of *air*, quickly *boile*; are leſs *buoyant*; and ſcarce will ſhew any ſenſible *refraction*; whereof *Vitello* gives us an eminent *example* of one that he ſaw in the ſubterranean cavity of a *Mountain* at a place called *Cubalus* between *Padua* and *Vincentia* that was ſo very thin and clear, that what ever was put in it, would appear of the ſame *figure* and *magnitude* to ſenſe, as if only *air* interpoſed [f]: And we are told that the water of the River *Silos* in India, is ſo rare and tenuious that it will not ſupport the weight of *Ships* [g]. Both which no queſtion, and all others that come near them, muſt needs be excellent for all *common uſes*, being ſo indifferent to *all*; having few or no *Salts* or *Sulphurs* whereby to introduce any extraneous unagreeable *taſts* or *odors*: I ſay for all *common uſes* relating to *meats* or *drinks*, or other *houſhold* affairs; all the *Saline* and *Sulphurious waters* having alſo their *uſes*, variety of mixture commending the *Medicinal*, as much as purity does the ordinary *ſprings*: of both which in their order.

20. And firſt of thoſe of more *common uſe*; whereof though there be none indeed that come very near, much leſs equal thoſe of *Cubalus* and *Silas*; yet I am confident there are as many, perhaps more clear limpid *Springs*, as free from *forraigne qualities*, that riſe in this *County*, as in any part of *England*, of the like quantity of ground: For beſides that the great and profluent river of *Trent* (which ſays *Camden* is juſtly reputed the third River of *England* [h]) riſeth in this *County*, out of *New-poole* (belonging to the right worſhipful and ingenious *Gent. Sr. John Bowyer Baronet* one of the nobleſt *Promoters* of this *deſigne*) and two other *Springs* near *Mole Cop*, and *Horton Hay*; its ſubſervient branches of *Sow*, *Penk*, *Tame*, *Dove*, *Churnet*, *Blithe*, *Tene*, *Manyfold*, *Hans* or *Hamps*, *Rewle*, *Black-brook*, *Lyme*, *Swarbourn*, *Dunſmoore*, *Endon*, and innumerable other *Rindles* that fall into them, alſo riſe within the *County*, and moſt of them within leſs than thirty miles of the *Weſtern* Sea; yet all make *Eaſtward*, and diſcharge themſelves with *Trent* into *Humber*, and ſo at length into the *German Ocean*, near an hundred miles from their firſt riſe. Whence the learned and ingenious *Sr. Simon Degg Knight* (whoſe aſſiſtances I muſt always gratefully acknowledge) has ſome thoughts that the *Eaſtern*, may be much lower than the *Weſtern* Sea; the deſcent of *Trent* through *Staffordſhire*, *Derbyſhire*, *Nottinghamſhire* and *Lincolnſhire* ſeeming much greater, than the *Dane*, and ſome other branches of the *Ri-*

[f] *Vitellonis Opticæ*, Lib. 10. *Theorem.* 42. [g] *Lib. Fromondi Meteorolog.* Lib. 5. cap. 3, *artic.* 3. [h] *Camdens Britannia in Staffordſh.*

ver Wever, that riſe about *Biddulph*, *Talk* on the hill, *Audley*, *Betley*, and *Madeley*, can poſſibly have through the level *County* of *Cheſter* into the *Iriſh Sea*. Of which perhaps more hereafter in due time and place*.

21. Nor has *Trent* only and *Wever* theſe great ſupplies of water from the fountains of this *County*, but many branches of the *Severn* (the ſecond *River* of *England*) have their riſe here alſo, as the *Terne*, *Smeſtal*, *Flaſhbrook*, and the others that come forth *Aqualat* and *Snowdon* poole: To which add that the *Meeſe*, *Stour*, and *Severn* it ſelf (the only *navigable* River in it) alſo paſs through this *County*. All which ſumm'd up together, we find at the foot of the account, that it is water'd with no leſs than 24. *Rivers* of *name*, though a Mediterranean County; beſides the endleſs number of *anonymous Rindles* and ſmall *brooks* that muſt needs attend them; a *number* perhaps that very few *Countries* of the like extent can be found to ſurpaſs, if any that equals, it. And ſome of theſe too of ſo rank precipitant ſtreams eſpecially the *Dove* and *Dane* (there being here and there in them, near the fountain heads ſome ſmall *Caſcades*) that in time of floods they break down *Bridges*, and remove *ſtones* of *immenſe* magnitude, and the *Dove* ſometimes will change its *channel*; which I ſuppoſe ha's been the cauſe that a part of *Staffordſhire* in the pariſh of *Mathfield* lyes on *Derbyſhire* ſide the *River*, and a little below (near the bridge you paſs over to *Snelſton*) a part of *Derbyſhire* on the *Staffordſhire* ſide: Nay ſo very ſharp too are ſome of the leſſer *brooks* upon ſudden rains; that, as I was ſeriouſly told by that ingenious Gent. Mr. *Philip Hollins* of *Moſeleie*, the little *Rivulet* called *Cowms brook* that runs betwixt his houſe and *Basford*, into *Churnet*; once removed a ſtone of three or four *Tun*, at leaſt a bows ſhoot.

22. The *Currents* alſo of moſt of the other *Rivers* are rapid enough, but ſome of them indeed muth quicker then others, as the *Trent* than *Sow*, and *Sow* than *Penk*; yet all of them ſo ſwift, as to prevent any vapid noiſom *vapors* from aſcending thence to infect the *Air*, though it muſt needs indeed be rateably better or worſe, according as their *ſtreames* be ſwifter or ſlower. Beſide the *Rivers*, the *Meers* and *Pools* of this *County* are many and large, whereof that at *Aqualat* is 1848 *yards* long, and 672 *yards* broad, which it holds within a trifle more or leſſe, almoſt from one end to the other; and *Basford poole* is ſaid to contain about threeſcore Acres; to which add *Cockmeer*, *Eccleſhall Caſtle* pooles, *New-poole*, the poole at *Mare*, with divers others: All which either having *Rivulets* that continually paſs through them, or being fed with living *Springs*, and plentifully ſtock't with Fiſh which perpe-

* *Vid.* §. §. 84, 85, 86. *of this Chapter.*

tually move the *Waters*, they are always kept ſo clear and free from *ſtagnation*, that in a manner they ſend up as few noxious exhalations as the *Rivers* themſelves.

23 Amongſt which we muſt not forget the *Poole* or *Lake* mentioned by Mr *Camden* out of *Gervaſe* of *Tilbury*, who in his *Otia Imperialia* to *Otho* the *fourth*, ſays that in the *Biſhoprick of* Coventry *and County of* Stafford, *at the foot of a Hill, which the inborn people of the* Country *have named* Mahull, *there is a water ſpread abroad in manner of a* Meere, *in the territory of a* Village *which they terme* Magdalea; *in which* Meer, *or* Marſh *there is a moſt clear water, which hath ſuch an effectuall virtue in refreſhing of bodies, that ſo often as* Hunters *have chaſed* ſtaggs, *and other* Deere *untill their* Horſes *be tired, if in the greateſt heat of the ſcorching* Sun *they taſt of this* water, *and offer it unto their* horſes *for to drink, they recover their ſtrength of running again which they had loſt, and become ſo freſh as one would think they had not run at all*[1]. But where about this ſhould be, ſays *Mr Camden*, I cannot yet learn, nor indeed could I hear of any ſuch *Hill*, though that at *Heyley Caſtle* having a great *poole* at the foot, ſeems agreeable enongh to it, being near alſo to the *village* of *Madeley*, perhaps anciently called *Magdalea*; which I ſo little doubt will refreſh a *Horſe* if he drink thereof after he is tired with running, that I firmly beleive all the pooles in the *County*, will doe the very ſame, being generally clear & briſk; and but few flat or vapid.

24 Tis true indeed in the *Moorelands* where they burn much *Peat*, their pits are uſually fill'd by the frequent *rains* brought by the *Tropæan winds* from the *Iriſh Seas* in which the water being ſated with a crude *Sulphur*, and *ſtagnating* beſides, muſt needs emitt contagious vapors; yet are not theſe neither ſo bad as ſome have fancyed the *water* is of the *black-Meer* of *Morridge*, which I take to be nothing more than ſuch as thoſe in the *peat-pits*; though it be confidently reported that no *Cattle* will drink of it, no *bird* light on it, or fly over it; all which are as falſe as that it is *bottomleſſe*; it being found upon meaſure ſcarce four *yards* in the deepeſt place, my *Horſe* alſo drinking when I was there as freely of it as I ever ſaw Him at any other place, and the *fowle* ſo far from declining to fly over it, that I ſpake with ſeveral that had ſeen *Geeſe* upon it; ſo that I take this to be as good as the reſt, notwithſtanding the vulgar diſrepute it lyes under.

25. Though indeed they are all *unwholſome* enough in themſelves, and would be ſo to the *Inhabitants*, but that the *Moorelands* is an open *Country* lying high, and the Hills cloathed neither with *woods* or *groves*, ſo that being lyable to the ſmalleſt *briſes* of wind,

[1] *Camden's Britannia in Staffordſhire ſub finem.*

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the noxious exhalations whenever they ariſe (except in deep *Calmes* which are every where unwholſom) are always diſperſed; which is ſo *ſoveraign* a *remedy*, that the *Mooreland* Country notwithſtanding their *Boggs*, is really as healthy perhaps as the beſt part of the *County*; if the great *Age* and conſtant *health* of the *Inhabitants*, that have been lately, and are now living there, may paſs (as ſure they ought) for ſufficient proof of the matter, of both which, were I put upon it, I could no where find ſuch pregnant inſtances; The Worſhipful Mr. *Biddulph* of *Biddulph* (as I was informed by divers) having not long ſince had twelve *Tenants* all living at a time within the two *Pariſhes* of *Biddulph* and *Horton*, whoſe *Ages* put together made up a thouſand years: And the Worſhipful *William Leveſon Gower* of *Trentham* Eſq; having now four *Tenants* all living at *Cocknage* in the edge of the *Moorelands* that one with another make 360 years; which I take for ſuch cogent and inſuperable *Evidences* (to omit many others of the like kind) that nothing more need be added in this place; the *Longevity* of perſons belonging to another.

26. And ſo much for the *waters* of more common uſe, as they are ordinarily found in *Pooles*, *Springs*, or *Rivers*; come we next to conſider thoſe that have ſomwhat unuſual in them, whether in their *Exit*, *courſe*, or ſaturation with *Sulphurs* or *Mineral Salts*, or howſoever remarkable upon any other account: And firſt of the *Pooles*; whereof there is one at *Penford*, which though a ſtanding *Lake* yet is ſeldom dry, and tolerably clear in ſetled fair weather, only againſt *rain* it becomes troubled, riſeing full of *bubbles*, and in a little time thickening at the top into a yellow *Scum*, which preſently as it *rains* vaniſhes away, and the *water* recovers again its former colour and clearneſs: All which has frequently been obſerved and found to be true by the worthy Mr. *Fowler* an inhabitant of the place, who freely confeſt that he had often been admoniſht by it in time of *harveſt* to fetch in his Corne, and at other times made the ſame uſe of it, as we do of *weather-glaſſes* or other *Hygroſcopes*, ſo that as to the matter of fact I doubt not at all, though I had not opportunity of makeing *Experiment* of it.

27. But how this ſhould come to paſs is the great queſtion? in order to the ſolution whereof I could not but call to mind that upon the approach of *Rain* there are few ſtanding pooles that do not riſe in *bubbles*, which ſome have attributed to the *Eeles* or other fiſh, which they would have to be as ſenſible of approaching *ſtormes* as we dayly ſee *birds* and *beaſts* are, and perhaps ſo they may: whether this *Poole* were ſtock't with *fiſh* or no I did not enquire, nor matters it much whether it be or no, ſince I am ſure the ſame happens where there are *none*; beſide, that it would be ſomwhat

unaccountable too, how they ſhould raiſe a yellow *Scumme*: It ſeems therefore in my *judgment* much more probable, that the pores of the *Earth* being at ſuch times unlock't (bodies much more compact alſo yeilding and expanding themſelves againſt *rain* as we ſee it in our *wainſcots*, in the boards of Mr. *Conniers*'s [k], and *coards* of the *Sieur Grillet*'s new *Hygrometer* [l]) many *ſteams* breath forth, which being as various as the *earths* from whence they proceed, produce as different *fermentations* in the *mud* and *water*, which thicken it and occaſion thoſe *bubbles* to aſcend; whence paſſing into the *Air*, and repelling its preſſure, they may be as likely too, to cauſe the falling of the *Quickſilver* in our *Barometers*, as any thing perhaps that has hitherto been thought of.

28. The *aſcent* of theſe *ſteams* that thus diſturb the *Mud* &c. I take alſo to be the occaſion that *Ducks* and other *water fowle* clap their *wings* and rejoyce upon approaching *rains*, and are after ſo buſy with their heads under water, I ſuppoſe, to ſee what they can catch by the way: Which if true in the *general*, let us now come home to the *particular* caſe in hand, and ſee how it comes to paſs that ſuch a yellow *ſcumme* ſhould be ſent up thus to cover the face of the water. Wherein though it cannot very well be expected that I ſhould allege very many, or very probable reaſons, being unhappily prevented of ſeeing the place, by ill weather and approach of night; yet perhaps I may not over much miſs of the mark, if I gueſs it may be done by the aſcent of *Niter* or ſome *nitrous fume*, that mixing with a *Sulphur* in the bottom of the *Lake*, and ſharply corroding and ſeparating its parts, may thus ſend them up to the ſurface of the *water*, which may be repell'd or diſperſt again upon the *deſcent* of the *rain*: in which *conjecture* I am not a little confirm'd, becauſe at *Codſall* not far off there is *ſulphur* enough in the *earth* as ſhall be ſhewn in due place, which yet I am not ſollicitous ſhould longer paſs for the reaſon, than till a better can be brought to ſupply its roome.

29. And as this foretells *Rain*, ſo there are ſeveral other *Pooles* that prognoſticat a *dearth*, either by riſeing, or overflowing: ſuch is the *Moſs poole* near *Mearton* in the pariſh of *Forton*; and *Drudemeer* in the pariſh of *Aldridge*; the *riſeing* of the former, and *exundation* of the latter, (which generally at other times is near dry) being taken for certain *ſignes* of a *dearth* of Corne: and perhaps ſo they may indeed not without reaſon, our *dearths* here in *England* being moſt frequently the *conſequents* of great *Rains*. But that which excells all the reſt in this *feat* is *Hungry pit*, ſituat in a field below the old fortification not far from *Billington*, but in the pariſh of *Seighford*, ſo called I ſuppoſe, for that contrary to the rule

[k] *Philoſoph. Tranſact.* Numb. 127. *and* 129. [l] *Weekly Memorials*, Numb. 1. p. 8.

of

of *Nile* upon the pillar of *Mikias* in the Iſle *Roud* or *Garden* [m] which brings plenty, this predicts ſcarcity by its riſe upon *ſticks*, ſet upright in the mud, which the people place there every one for their own particular *obſervations*; forejudging the riſe or fall of *corne* in the *Mercats*, by the riſe or fall of the water on theſe *ſticks*, and ſo either keeping or vending it accordingly: wherein it ſo little reguards the quality of the *weather*, that it overflowes ſometimes in the greateſt *droughts* (as I ſaw it do in the dry Spring Anno. 1680.) and as often has nothing in it after great falls of *rain*; as was told to me from the frequent *obſervations* of divers ſober perſons now living thereabout: who alſo aſſured me that the remarks made upon it had been ſo profitable to ſome (whether by *caſuality* or not, they could not tell) that they had advanced their *fortunes* conſiderably by it.

30. How many concurrent cauſes and circumſtances attending them, may unite in produceing of ſuch an effect, though it be hard to determin, yet thus much I think we may pronounce for certain, that it muſt needs be done by the mediation of *Springs*: into which opinion I am the rather induced, becauſe I find the ſame *intermiſſions* in many *fountains*, particularly in the *Well* South of *Whittington* Church, which though it want not *water* at any time whatever, yet *overflowes* (they ſay) extreamly againſt a *dearth* of *Corne*: But in the *Church* field not far from thence, in a piece of ground call'd *Hunger-moore-ſlade* belonging to Mr. *Nicholas Harvey* of *Whittington*, there is a *Spring* that breaks forth (according to the opinion of the people) only before a time of great *dearth*, being at all other times *dry* though at the *wetteſt* ſeaſons, as I found it in *Autumn An.* 1680. after a full *Moneths* rain: And when it does break forth (which for the moſt part happens not in ſeveral *years* *) it then ſeldom runs above thirty poles, at which diſtance it ſinks into the *Earth* again.

31. Near *Aſhwood* bridg in the pariſh of *Kings-Swinford* and not far from *Swyndon*, I was ſhewed another *Spring* with a ſmall *Lake* before it, by my worthy friend Mr. *John Paſton Rector* of *Himley*, ſomwhat agreeable to this, commonly called *Hunger-wall*, becauſe it is uſually either quite *dry*, or at moſt *ſtagnats* and runs not at all, but (as the vulgar will have it) againſt a *dearth* of *Corne*: which how true it may be I ſhall not here diſpute, but moſt certain it is, it does not always *run*; and when it does, it ſometimes they ſay comes forth with ſuch a *noiſe*, that it has frightened people, that have then happen'd to be near it, as particularly they

[m] *F. Vanſlebius his preſent State of Egypt. Cap. of the Pillar Mikias.* * *Nonnulli [fontes] ad multum tempus ceſſant effluere, deinde rurſus emergunt. Geo. Agricolæ de Natura Eorum quæ effluunt ex terra* Lib. 3.

will

will tell you it did ſome *Rabbit-ſtealers*, that were not far off, when it once thus happen'd to burſt out: much after the ſame manner I ſuppoſe as at that celebrated *Spring* in the *Peak* of *Derbyſhire* called *Weeding Well*, which as my worthy, learned, and moſt ingenious friend, the Worſhipful *Charles Cotton* of *Beresford* Eſq; in his *hiſtorical Poem* of the *wonders* of the *Peak*, alſo acquaints us, ſends forth a hollow murmering *noiſe*[n], before the approach of the waters, that it emitts in like manner but at *certain times*; and that too at ſuch inequal *periods*, that 'tis a hard matter to hit the time of its *flowing*; ſo untruly is it ſaid to keep correſpondence with the *Sea*, ſo as to obſerve its *Tides*; and ſo abuſively for that reaſon do ſome call it *Tides-well*; for ſays the ingenious Mr. *Hobbs*

Fons hic temporibus nec tollitur (ut mare) certis;
Æſtibus his nullam præfigit Ephemeris horam[o].

32. And quickly after he tells us, that it is ſo *uncertain*, that it *ebbs* and *flows* ſometimes *thrice* in an *hour*, and ſometimes again not above *once* in a *Moneth*; which frequency of *ebbing* and *flowing* he aſcribes to the *rains*, and the infrequency to *droughts*, to whom the ingenious Mr. *Cotton* objects,

Though here it might be ſaid if this were ſo
It never would but in wet weather flow;
Yet in the greateſt drought *the* Earth *abides*
It never fails to yeild leſs frequent Tides,
Which always clear and unpolluted are,
And nothing of the waſh of Tempeſt *ſhare*[p].

ſo wholy independent thinks that ingenious *Gentleman* this *Spring* to be of the temper of the *ſeaſon*, though it has not indeed the repute of foretelling *dearths*, and other ſtrange *Revolutions*, as this of ours has; for which very reaſon and its breaking forth with a *noiſe*, I take it to be the *Lake* of *Alexander Neckham*, to which he aſcribes the very ſame *qualities*, and expreſly ſays it is in this *County*, the Title of his *Poem* concerning it being

De Lacu Staffordiæ.

Rugitu Lacus *eſt Eventus præco futuri,*
Cujus aquæ fera ſe credere nulla ſolet,
Inſtet odora Canum virtus, mors inſtet acerba,
Non tamen intrabit exagitata Lacum[q].

of which other *quality*, *that no wild beaſt will in any wiſe enter it*,

[n] *Wonders of the Peak*, p. 26. [o] *Thomæ Hobbs de mirabilibus Pecci Carm.* [p] *Wonders of the Peak* p. 29. [q] *Camden in Staffordſh. ſub finem.*

though

though I muſt confeſs I heard nothing, yet this being the moſt *agreeable* to it of any I could hear of in the *County*, muſt either be it, or perhaps (which is more probable) there is none ſuch at all.

33. *Walter* of *Hemingburgh* tells us of ſuch intermitting prophetic *waters* called *Vipſe's*, which *Gulielmus Neubrigenſis* ſays were in the *Province* of *Deira* near the place of his birth, and that he knew them from his childhood to run but now and then againſt a time of *dearth*, *non quidem jugiter ſed annis interpoſitis*, ſeveral *years* being interpoſed wherein they were dry, which *drought* too they eſteemed as a certain ſigne of *plenty*[r]. And I was told of ſuch a *Spring* near *Spot-Grange* not far from *Hilderſton* that breaks forth only againſt a *dearth*, which had then been dry for three or four years. The little fountain in *Cank-wood* ſo much obſerved by the right Worſhipful Sir *Brian Broughton* Bar^t^. may alſo be reckoned another of this *kind*; it running as well in *dry*, as *wet* weather, and ſometimes in *neither*: All which put together: with ſome others hereafter to be mention'd, may paſs I ſuppoſe for evidence enough, that there are indeed in the *World* ſuch *intermitting ſprings*, that have no dependance at all upon the *weather*: but whither there be any ſuch connexion between the *profluence* of theſe, and *dearths*, *wars*, *plagues*, and many other like *prodigious Events* as are ſaid to follow them, I am very diffident, and want confidence either to aſſert, or inſert them here.

34. For quite contrary to theſe I find *St. Hellens well* at *Ruſhton Spencer* ſo plentiful a *ſpring* that joyned with another but of equal force, they ſupply an *overſhot Mill* not far diſtant from their riſe, for many years together; yet ſo ſometimes it comes to paſs that this *well* will grow *dry*, after a conſtant *profluence* perhaps of eight or ten years, and this not by degrees, but altogether of a ſudden; as well in *wet*, as *dry* years; and always about the beginning of *May* when the *ſprings* are commonly eſteemed higheſt, and ſo uſually continues, as I was credibly informed by the Worſhipful the ingenious *Robert Wilmot* of *Eardley* Eſq; till about *Martin mas* following: And this the vulgar too imagin, never happens but before ſome *ſtupendous Calamity*, of *dearth*, *Warrs*, or other grand *Revolution*: thus they will tell you it grew *dry* before the laſt *Civil-warr*; again before the *Martyrdom* of K. *Charles* the firſt of ever bleſſed memory; again about 10 years ſince before a great *dearth* of Corne; and laſtly in An. 79. upon our late *diſturbances*. Now that the ſame things ſhould be portended, by the contrary operations of the ſame *cauſe*, upon the ſame *Subject*, ſeems prety hard, that I ſay not unreaſoneable, to be allowed; ſo

[r] *Guliel. Nubrigenſis Rerum Angl.* Lib. 1. cap. 28.

that I fear there is more of *Casualty* and *credulity* in the matter, than of any *dependence* that can probably intercede, the *flowing* and *dry'th* of these *Springs*, and such *deplorable Events*.

35. Much better therefore will it be, and much more instructive to the *Reader*; wholy to wave all consideration of these *rustick opinions*, imposed *gratis* on the incurious Multitude, and apply my self closely to a further consideration of these *temporary Springs*; and the rather, because they seem to conduce not a little (together with some others hereafter to be mention'd) to the illustration of the *Question* so much controverted by the *Learned*, viz.

> *Whether the* Springs *are supplyed with that great* Expence *of water, that we see they dayly vent, from* Rains, Mists, Dews, Snows, Haile &c. *received into the Spungy tops of* Monntains *and sent forth again at the feet of them, or somwhere in their declivities; or whether they are furnish't from the* Sea *through subterraneous passages, as from the great* Treasury *of the* waters, *and are return'd again thither by the* Rindles, Brooks, *and* Rivers? *Or in short, whether they have their* Origine *from the* Sea *by a* superior Circulation *through the* Clouds; *or by an* inferior, *through* Channels *in the bowells of the* Earth? *or from both?*

which though it be stated by so very many *Authors*, and so fully too, as that some of them have written whole *Treatises* about it, so that one would think there should nothing *material* remain unsaid upon this *Subject*, Yet having seen in my travels great variety of *Springs*, and observed many particulars in this *County* relating to them perhaps altogether unknown, at least not minded by others; I make bold to produce them, since it must be of *concern* that any thing can be added, to a *Subject* that has so fully been enlarg'd upon already.

36. And this that I might doe with as much *brevity* as may be, I have excluded all the wild extravagant opinions of *Nicholas Pypin* and others, in the very proposal of the *Question*, supposing all others that have any tolerable *pretence* may be reduced to one or other of it's *branches*, without much force or constraint: To come then close to the matter without further *preface*, let us first consider (that we may do't too with *perspicuity*) how many sorts of *fountains* we have to treat of, for by this means it will be evident, whether all sorts of *Springs* belong either to this, or that *Member* of the *Question*? or whether some to the one, and the rest to the other? which upon weighing the whole matter as they stand related to this *Problem* I find best distinguish't by the manner of their *Exits*, time of *duration*, and their saturation with mineral

Salts,

Salts, *ſulphurs*, or *bitumen's*; from which *Topics* they naturally divide themſelves, into *Springs* that are

- Either
  - *Temporary*, ſuch as have no conſtant flux, and theſe again are
    - either
      - *Regular*, and theſe too are either
        - *uncertain*, which yet conſtantly follow Rains.
        - *certain* and *periodical*, that conſtantly obſerve a certain time of the year.
      - *Irregular*, which too are either
        - *annual*, that happen every year, but at uncertain times of that year.
        - *ſeptennial*, *decennial*, *&c.* that run or ſtop in 7, 8, or 10 years.
  - *Perennial*, that have a conſtant flux, and theſe again are
    - either
      - *Pure clear water*, which too are either
        - *weak*, and *weeping*.
        - *ſtrong*, and *profluent*.
      - *Mixt*, and theſe are either
        - *Saline*, whereof ſome are
          - *Hot*, as in Bathes.
          - *Cold*, as in the Salt-works, and ſome medicated waters.
        - *Sulphureous*.
        - *Bituminous*.

under ſome of which *heads* I ſuppoſe there is no ſort of *fountain* whatever but may be moſt comodiouſly reduced without ſtraining of Courteſie, at leaſt none in *Staffordſhire*, which whether they all come from *rains*, *miſts*, *dews*, &c? or all from the *Sea*? or ſome from *one*, & ſome from the *other*? is the *Queſtion* to be debated.

In the *deciſion* whereof, I think I may be *peremptory* that amongſt the *Springs* that have no conſtant flux, thoſe which in the *Summer* time are commonly dryed up, but after plentiful falls of *rain*, or competent *moiſt weather*, are conſtantly either *profluent*, or have a moderat *ſtream*; in ſhort, that the *temporary regular uncertain* Springs, muſt certainly depend on *rains*, *dews*, &c. And I beleive moſt of thoſe perennial *Springs* that are near the *tops* of *Hills* (whereof I have had the opportunity of viewing many) which I generally find to be but *weak* and *weeping* rather than *runing*, ſuch as that upon the *Bruff* hill in the *Pariſh* of *Mare*, in all

probability too muſt either come from *rains*, or the *miſts* that we ſee uſualy hang on the *Summits* of them, when it is clear and dry weather below in the *valleys*: And not only theſe, but as *Vitruvius*, *Peter Martyr*, *Cardan*, *Molina*, *Bernard Paliſſy*, *Gaſſendus*, *Le Pere Iean Francois*, and another *Anonymus French Author*, Printed at *Paris An.* 1674. Mr. *Ray*, *Mr. Hook*, &c. are of opinion, all other *Springs* and *runing waters* whatever, owe their *origine* and *continuation* chiefly to *rains*, *dews*, *&c.* The probability whereof they inſinuat principally by the following *reaſons*, which I ſhall here repeat as faithfully and as ſuccinctly as may be.

38. Firſt becauſe great inundations or overflowing of *Rivers* manifeſtly proceed either from the *rain* that immediatly falls, or from the melting of *Snow* or *Ice* that hath formerly fallen upon the more eminent parts of *Mountains*. 2, Becauſe many *Springs* quite fail in dry *Summers*, and generally all *abate* conſiderably of their *waters*. 3, Becauſe no *Springs* break out either on the *top* of a *hill*, or ſo near the *top*, but that there is always *earth* enough above them to afford a ſupply, conſidering the condition of high *Mountains* which are almoſt continually moiſtened with *Clouds*, and on which the *Sun* beams have but little force. 4, Becauſe 'tis obſerved that there are no *Springs* riſe in any *plain*, unleſs there be hills ſo near that one may reaſonably conclude they are fed from thence. 5, Becauſe in *Clay Grounds* into which *water* ſinks with difficulty, we ſeldom find any *Springs*, whereas in ſandy, gravelly, rocky, ſtony, or other *grounds* into which *rain* can eaſily make its way, we ſeldom fail of them. 6, Becauſe we are aſſured by thoſe that have experimented and calculated it, that *communibus annis & locis* there falls water enough from the *Heavens* in actual *rain*, *miſts*, *dews*, *ſnow* or *hail*, upon the ſurface of any *Country*, to ſupply all the water that runs into the *Sea* by the *rivers* of that *Country*. 7, Becauſe they who would have *Fountains* to ariſe from, and to be continnually fed from the *Sea*, have not as yet given any ſatisfactory account,

39. Firſt, that there are any ſuch *Caverns* or *ſubterranean paſſages* in the *Earth* that come from the *Sea*; or 2. If there be, how water can aſcend to the *tops* of *Mountains* and have its *efflux* there, ſince the *Sea* can have no ſuch protuberances or elevated parts above the reſt, as the *earth* ha's; and that no *water* will aſcend above its owne *Level*. or 3, How the water (if from the *Sea*) ſhould become thus *freſh*, ſince it ſeems ſo far from being done by *tranſcolation*, that it cannot be ſo done by *diſtillation* though frequently repeated, but it will retain a *brackiſh* taſt; for that *ſea-water*, as *Varenius* aſſerts, ha's a *volatil* as well as a *fixt ſalt*, which latter though it can be ſeparated either by *percolation* or *diſtillation*.

on, yet the *volatil* cannot, it being ſo *ſpirituous* that it will aſcend with the moſt *rarifyed water*. Nor 4. do they give any ſatisfactory account, why the *paſſages* through which theſe *percolations* are made (if the *ſalt* be continually left behind in them) are not long ſince ſtopt up with the *ſalt* that ha's perpetually been left behind in them from the begining of the *World*. Nor 5. why the *Sea* is not long before this become all *freſh*, ſince we cannot but ſuppoſe that the whole *maſs* of *water* ha's once at leaſt paſt through the body of the *earth* ſince the *Creation* of the *World*, if not many more times than there are years ſince the *begining*, as thoſe that do hold the contrary opinion do freely admit. And theſe are the chief *reaſons* (nor are they ſlight ones) upon which the *Authors* above mention'd have grounded their *opinion*, which is the moſt applauded one too, and moſt univerſally received; in relation whereof I have been ſo far from *abateing* any thing of their *ſtrength*, that I think I have propoſed ſome of them with more advantage than the *Authors* themſelves.

40. And yet this opinion ſeems to be preſt with more, and more inſuperable *difficulties* than the other of *Homer*, *Plato*, *Ariſtotle*, *Virgil*, *Seneca*, *Pliny*, *the Philoſophers* of *Conimbra*, *Scaliger*, *Dobrzenzki*, *Van Helmont*, *Lydiat*, *Pierre Davity*, *Des Cartes*, *Du Hamel*, *Le Pere Schottus*, *M. Jaques Rohault*, *Petrus Barbay*, and the Reverend and Learned *Dr. Stillingfleet Dean* of St. *Pauls*, who all hold with little difference that ſome *Springs* at leaſt are furniſh't from other *waters* in the bowels of the *Earth*, which moſt of them agree too muſt be ſupplyed from the *Sea* by *ſubterraneous paſſages*, and that they are returned again thither by the *Rindles*, *Brooks*, and *Rivers*, by the *inferior Circulation*: It is preſt I ſay with far more inexplicable *difficulties*, than that of *Homer*, *Plato*, &c. for beſide that 'tis altogether unreaſonable to admit that any of thoſe *temporary irregular Springs* mention'd in the §§ 30, 31, 32, 33, 34. of this *Chapter*, (conſidering their circumſtances) ſhould by any means poſſible come from *rains*, *dews*, &c. though the waters they ſend forth indeed are but few and inconſiderable; it is altogether as improbable (that I ſay not impoſſible) that the *temporary regular periodical Springs* ſhould have their *origine* thence: for beſides that they conſtantly obſerve their *terms* whether in *wet* or *dry* weather, ſome of them happen at leaſt (if not ſo directed by ſome unknown ſecret operation of *Nature*) either to *flow* only in the dry *Summer* quarter, or to be moſt *profluent* then, though in an extream *drought*.

41. Thus the famous *horary Fountain Lers*, that riſes out of a vaſt deep Cave in the mountains of *Foix*, near *Beleſtat* in *Languedoc*, and waters the *Mazerean* plains near *Tholouſe*; *Hic* (ſays *Emanuel Maignan*)

nan) *per æſtatem ſingulis horis, quadrante paulatim ſuccreſcit, non ſine multo aquarum immugientium fragore, mox quadrante in uberrimum fluvium exundat; deinde alio quadrante ſubſidet, ac demum quadrante etiam interquieſcens, aret*[s]. i. e. that this *Spring* in *Summer* (which *Du Bartas* ſays holds for *four* Months, *Gaſſendus* but *three*, and that it firſt breaks forth in *May*, *June*, or *July*) *ebbs* and *flowes* every hour, riſeing and increaſing with a great *noiſe* the *firſt* quarter, and flowing plentifully the *ſecond*; then ſubſideing again the *third* quarter, and growing dry the *fourth*: in both which *exceſſes* it is ſo conſiderable, that as *Du Bartas* teſtifies, for one half hour one may paſs it dryſhod, and the next ſcarce at all; part of whoſe *Poem* upon it, *Gabriel Lermeus* ha's thus tranſlated,

Per menſes aliquot dum Sol *utramque reviſit*
Thetida, *ſex quater ille vices oriturque cadítque*;
Nunc ſiccis pedibus ſiccæ calcantur arenæ,
Nec mora dimidiæ ſpatium uix fluxerit horæ,
Ecce tibi ſubito ruit impete Lerſus *abundans*
*Spumeus, & Curſus magnarum imitatur aquarum**.

42. Amongſt theſe *temporary regular periodical* waters, we may alſo reckon thoſe of *Niger*, *Ganges*, and *Rio de la Plata*, theſe having their riſe at ſtated times, as well as thoſe of the great River *Nile*, which begining its decreaſe on the 24 of *September*, and ſo continuing till *May* following, is then ſo low and weak, that it ſeems rather to *ſtagnat* than *run*; but preciſely about *Sun* riſeing on the 12 of *June* or *Baoni* of the *Copties*, which is the 17th of ours, in the height of *Summer*, it begins to increaſe, and ſo continues till the 17 of their *September* which is our 24th, in the mean time overflowing and ſtrangely fertilizing the whole *Country* of *Egypt*: The *Origine* of which *increaſe* the learned *Vanſlebius* (who lived there ſome *years* and carefully obſerved it) thinks chiefly to proceed from the fall of certain *drops*, ſomewhat like *dew*, that mixing with the *waters* cauſe ſuch a *fermentation* and *corruption* in them, that they expand themſelves and ſwell to a great *height*, long before it can any way be poſſibly effected by the great *rains* in *Habeſſia*, which according as *Ludolfus* was informed by the *Habeſſian* Abbot *Gregory* do not *fall* till their *winter*, which begins not till the 25 of *June*[t], and muſt have ſome time did they preciſely fall on that day (and were not ſtopt by the *Cataracts*) to run that vaſt

[s] *Emanuelis Maignan Tholoſati Perſpectivæ horariæ* Lib. 1. Prop. 1 §. 3. * *Gaſſendus tells us of another of this kind, which he calls Fontem Collis Martienſis, that Ebbs and Flows* 8 *times in an hour. Phyſ. Sect.* 3. *Memb. pr.* Lib. 1. cap. 7. *And Dr. Merret acquaints us with one near Kilken in Flintſhire that ebbs and flows* 4 *times in an hour, Pinax Rerum Nat.* p. 222.
[t] *Jobi Ludolfi Hiſt. Æthiop.* Lib. 1. cap. 5. §. 34.

tract of Land between *Goiam* (where the *Nile* riſes) and *Egypt*; though *Vanſlebius* ſays they fall not till *July*, *Auguſt*, and *September*, ſo that they can neither be the firſt nor ſole cauſe of its increaſe[u].

43. During this *riſe*, occaſion'd by the *fermentation*, there is a green kind of *Scumme* ſuperinduced upon the *water*, which endures betwixt twenty and forty days, more or leſs according as the great *rains* fall ſooner or later in *Habeſſinia*, which when they come down into *Egypt* turne the River *red*, being ſo tinged with the *earth* in the way before they come thither, the *Soil* of *Egypt* being black and therefore unlikly to do it. The learned *Cambræus* as cited by *Gaſſendus* thinks this fermentation to be cauſed by *Niter*, wherewith the *Country* and eſpecially the *Channel* of the *River* is acknowledged to abound, which being heated by the *Sun*, thus *dilates* it ſelf and makes the *River* to *ſwell*[w]: Wherein if he intend that ſort of *Niter* which we call *Borax* (I mean the natural and not the factitious) otherwiſe call'd *Chryſocolla*, deſcribed by *Rulandus* and *others* to be a *green* ſort of *Earth*[x], and that every body knows (though we have none but the factitious) huffs and ſwells with heat, I readily ſubſcribe to him: And the rather becauſe we find it mention'd to be plentiful in *Egypt*, and that the waters in the *Rivers* cauſe an itching over the body, as *Vanſlebius* informes us upon its firſt increaſe[y], which ſeems alſo to argue that the pungent particles of *Niter*, or perhaps of the *Natron* of *Egypt*, which too is a ſpecies of *Niter* *, are then very active: And thirdly becauſe hence we can give ſome rational account of the *green ſcumme*, which I take to be nothing but the froth of the fermentation made by the heat of the *Sun* whilſt it works on the *Borax* or *green Earth*, which ſays *Wormius* is the better, by how much the nearer it comes to the colour of a true *Smaragd*[z]. Not but that I know too that common *Niter* in its *detonation* or *alcaliſation* with coales, acquires a *green colour*, which perhaps it may alſo yield, upon the exceſſive heats of the *Sun*, in that *Country*.

44. Nor is the River only lyable to this remarkable fermentation, but the Ponds and Lakes too any where near it, and they are alſo covered with the ſame green Scumme, which *Vanſlebius* ſays in the year 72. was thicker than it had been known to be, for many years before: more particularly the waters of the Well of *Argenus* or *Gernus* a Monaſtery of the *Copties* near *Benheſe* a Towne in the middle of *Egypt*, is obſerv'd to be ſenſible of the fall of the *drops* or *dew*, and to riſe the very ſame night, and in the ſame man-

[u] *Vanſlebius's preſent State of Egypt, Chap. of the River Nile.* [w] *Petri Gaſſendi Phyſicæ Sect. 3. Memb. pr. cap. 3. & 5.* [x] *Mart. Rulandi Lexicon Alchemiæ in verbo Chryſocolla.* [y] *Vanſlebius's preſent State of Egypt, Chap. of the River Nile.* * *Obſervations Sur les Eaux Minerales par le Sieur Du Clos.* p. 83. [z] *Muſei Wormiani.* Lib. 1. Sect. 3. cap. 10.

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ner with the *River*, which having no poſſible communication with the *rains* in *Habeſſia*, ſhews evidently that the increaſe of the water in the *River*, comes partly at leaſt from another cauſe, and moſt likely from the *fermentation* made by the *Niter*, which however it comes to paſs ſeems to leave its owne pits (whereof there are abundance in *Egypt*) at the time of the increaſe and goe into the *River*; *Pliny* ſaying expreſly that whilſt *Nile* riſes and flows, all their *Niter* pits are dry, and that when it falls again and returns within its channel, then they yield their *nitrous juice* again for 40. days together.[b] Which too is further confirmed by this one very ſtrange, but true *Experiment* viz. that if you take of the *Earth* of *Egypt* adjoyning to the *River*; and preſerve it carefully, that it never come to be wet, nor any way waſted, and weigh it dayly, you ſhall never find it more or leſs heavy till the 17. of *June*, at which day it begins to be more ponderous, and augmenteth with the increaſe of the *River*, whereby they have as infallible knowledg of the ſtate of the future *Deluge*, as by the *River* it ſelfe: the humidity of the *Air* no queſtion having recourſe through all paſſable places and mixing with the ſame *Niter* in the *Earth*, increaſeth the ſame as it does the *water*, as was confirm'd to *Alpinus* from the frequent *Experiments* ſeen of it, by *Paulus Marianus Venetus* the French Kings *Conſul* there, *Bapt: Elianus* a Jeſuit, *Franciſcus Saxus*, *Franciſcus Bonus*, and one *John Varot* an Engliſh Gentleman[c]; which has put me upon deliberation whether there may not fall ſuch *diurnal* as well as *annual dews* (that may alſo vary with the *changes* of the *Moone*) which in ſome meaſure may cauſe the *flux* & *reflux* of the *green Sea* (in proportion to the parts of the *World* where the *Tides* are great, ſmall, or none at all) by ſuch *fermentations*.

45. Nor leſs unlikely are the wonderful *periodical waters* of the *Zirchnitzer ſee*, or rather *Lake* of *Carniola*, to depend upon *rains*; of which though *Georgius Wernerus* has written at large,* and made a *Map* of the *Lake*; yet the learned and ingenious Dr. *Edward Browne* has much better, and I believe more truly deſcribed it: Which He ſays is about 2 *German* miles long, and one broad; unequal in the bottom, being in ſome places but 4 foot, but in the *Valleys* (whereof there are 7 more eminent that have *names*) twenty yards deep; in theſe *valleys* there are many fiſh as *Carps*, *Tench*, *Eeles* &c. which together with the *water*, ſome time in the Month of *June*, all deſcend annually under ground through many great *holes* at the bottom; the *Earth* while the *waters* are thus

[b] *Excedente Nilo ſiccantur, accedente madent ſucco Nitri. Nat. Hiſt.* Lib. 31. cap. 10
[c] *Proſp. Alpini de Medicina Ægyptiorum.* Lib. 1. cap. 8. * *Geo. Wernerus de admirandis Hungariæ aquis. ſub finem.*

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ſunk, makeing a ſpeedy production of graſs yielding food for their Cattle in the Winter ſeaſon: which in the Month of *September* following, as certainly return again by the ſame *holes*, the *waters* ſpringing or mounting up to the height of a *Pike*, and runing and overſpreading the whole place again (as *Wernerus* deſcribes it) with that velocity, that they will overtake a ſwift *Horſeman*. It being remarkable too, that this *receſs* of *water* (as the riſe of *Nile*) is foreknown to them by a *ſtone* there is in it, called the *Fiſhers ſtone*; the *Prince* of *Eckenberg*, whoſe *Lake* it is, giveing all people Liberty then to take the fiſh, which they do by ſtanding in the *water* by the *holes*, and intercepting their paſſage †.

46. But we need not run ſo far either as *France*, *Egypt*, or *Carniola*, to find out *intermitting periodical waters* that have no dependence on *weather*, for (though I find none in *Staffordſhire*) goe we but to *Lambourn* in *Berks* & there we have a *Rivulet* as remarkably ſuch, as any of the forementiond, as I have been inform'd by many, but more particularly by the ingenious *J. Hippiſley Eſq*; an Inhabitant of the place, and late high *Sheriff* of the *County*, who ha's been pleaſed to favour me with divers *Letters* concerning it; importing chiefly that the Rivulet there called *Lambs-bourn*, which very likely as Mr *Camden* thinks gives name to the *Towne*, runs much more plentifully in the *Summer* than *Winter*, and that the *Springs* in the *Towne* it ſelfe are ſometimes ſo low in the latter Seaſon, that they are commonly forced to digg their *Wells* deeper for want of *Water*: And expreſsly writing to Him to know how the *Springs* held the laſt great *drought* in 81, He ſent me word that they were ſo far, from fayling, that (if there were any ſenſible difference) the *Springs* and *Rivulet* then were rather higher than ordinary, and fayled not till about the middle of *September* (the uſual time) before which there had fallen *rain* enough, yet then not a drop to be ſeen in the *Channel*, till about the middle of *Febr.* when the *ſprings* as cuſtomarily, began to recover themſelves again.

47. Nor has this been only obſerved of late, but admired and celebrated alſo in former Ages, though by none ſo ſignally as the Poet *Sylveſter* in his Tranſlation of *Du Bartas*, who lived long at *Lambourn* in a houſe now of Mr. *Hippiſleys*, in quality of a *Steward* to the antient family of the *Eſſexes*, which for many Generations flouriſh't there; where He compares it to the forementiond *Lers* of *Du Bartas*, and deſcribes its *Qualities* as followeth,

And little Lambourn *though thou match not* Lers,
Nor had'ſt the Honor of Du Bartas *verſe*;
If mine have any thou muſt needs partake,

† *Dr. Brown's account of his Travels into Hungary, &c.* p. 127, 128. * *See Nat. Hiſt. of Oxfordſh.* chap. 2. §. 17.

Both for thy owne, *and for thy* Owners[d] *ſake,*
Whoſe kind Exceſſes thee ſo nearly touch,
That yearly for them thou doſt weep *ſo much,*
All Summer *long (while all thy* Sifters *ſhrink)*
That of thy tears *a million dayly drink,*
Beſides thy Waaſt; *which then in haſt doth run*
To waſh the feet of Chaucers Donnington[e].
But (while the reſt are full unto the top)
All Winter *long thou never ſhow'ſt a drop*
Nor ſend'ſt a doit of needleſs ſubſidie
To Cram the Kennet's *wantleſs Treaſury.*
Before her ſtores be ſpent and Springs *be ſtaid:*
Then, then alone, thou lend'ſt a liberal aid,
Teaching thy wealthy neighbours (mine *of late*)
How, when, and where, to right participate
Their ſtreams *of comfort, to the poor that pine,*
And not to greaſe ſtill the too greaſy Swine:
Neither for fame nor forme (when others *doe)*
To give a morſel or a mite or two,
But ſeverally, and of a ſelfly motion,
When others *miſs, to give the moſt devotion*[f].

48. I know *Mr. Ray* ſays that the *Rivers* which flow from the *Alps* run loweſt in the *Winter*, and abound moſt with water in the *Summer* time, ſo that ſometimes they overflow in the *hoteſt Months* when no *rain* falls; and that He teſtifies the ſame of the *River Rhodanus*; but attributes it wholy to the melting of the *Snows* at that time of Year, which lye thick on thoſe Mountains for 6 months together, no *rain* falling on them all the *winter* Seaſon (excepting the lower parts) but only *Snow*, and perhaps indeed it may be ſo[g]: I know alſo that *Gaſſendus* alleges the ſame cauſe for the flowing of the *Lers* in the *Summer* Months[h]: However it may be with thoſe, I am ſure there is no pretence for the ſame cauſe at *Lambourn*, for having ſtrictly enquired, as there are no *Hills* thereabout conſiderable enough to preſerve *Snow* on their *tops* any longer than in other parts of *England*, nor large *Clefts* or *Caverns* in them that might conſerve it ſo long as to be melted only in *Summer*, and then to make this copious flux; So could I not hear of any other known means whereby this might be done, more than for the great River of St. *Francis* the chief of *Pharnambuck*, which as *Piſo* acquaints us, by ſome hidden cauſe in *Nature* overflowes

[d] *Sr. William Eſſex.* [e] *Dennington Caſtle upon this Rivulet, once a ſeat of Sr. Geofry Chaucer's, our famous Engliſh Poet.* [f] *Sylveſter's Tranſlation of Du Bartas the third day of the firſt Week.* p. 55. [g] *Obſervations Topographical, &c.* p. 103. [h] *Pet. Gaſſendi Phyſica* §. 3. *Memb. pr.* Lib. 1. cap. 7.

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in this manner in the *Summer* time when all other *Rivers* are lowest[i]: Or for the fountain near *Peſquera* in *Spain* which as *Cardan* informes us begins to run in the Spring, overflowes in the *Summer*, begins to fail in *Autumn*, and is quite dry in *Winter*[k]. To which let me add the *Gips* upon the *Woolds* in *Yorkſhire*, which ſays the Worſhipful *Edward Leigh* of *Ruſhall* Eſq; in the drought of *Summer*, when all other *Springs* ſeem to be dryed up, burſt out and riſe up five or ſix yards in height and ſo fall into the *Dales* and make a little *River*, by which the *Townes* near refreſh their *Cattle*, when the *Valley Springs* fail[l].

49. Of which ſort of *Springs* and *Rivers* there are ſo many in the *World* that the day will ſcarce ſerve me to recount them all: The *wells* near the Lake *Aſcanius* ſays *Agricola*, *Hyeme ſiccari, æſtate uſque ad labra repleri ſolent*, i. e. that they uſe to be dry in *winter*, but in *ſummer* full to the very brim; he tells us alſo of the *Valeſian* Spring *ad calidas Lucenſes* that runs plentifully all the *ſummer* from *May* to *September* but then grows dry*: And *Varenius* acquaints us that at the Towne of *Villa nova* in *Portugal* there is a fountain that flows only from the *Kalends* of *May*, to the *Kalends* of *November*, and then growes dry; and of another in *VValliſland* near the bathes of *Leuckerbad* that ceaſes to run in *Autumn*, and begins not again till the *May* following; Another of this kind he ſays there is in *Spain* 2 miles from *Valladolid*; and another near the Church of St. *Iean d' Angely* ſomewhere in *Aquitan* in *France* †: To which *VVernerus* adds one at *Pfevers* a towne of the *Griſons*, which conſtantly failes in *October*, and ſprings forth not again till *May*; and another in *Switzerland* that always becomes dry in *Auguſt*, and runs no more till *June* following ¶; with many others that I omit, leaſt I hurt the patience of the *Reader*.

50 And as it is improbable that any of theſe *Temporary Springs* (Except ſuch as never run but after *rains*, and fail upon all *droughts*) ſo it is altogether as unlikely that *Conſtant waters* that abate not at all in the greateſt *ſiccity*, ſhould wholy depend upon ſo uncertain principles as *Rains Snows* &c whereof there are plenty in this *County*; particularly of a ſort of *fountains* which *Agricola* mentions, *Qui ſemper abundant Aqua, ſed nunquam effluunt*[m], that are always full of water but never overflow ſo as to make any *ſtreame*; ſuch are thoſe pits of water in the mooriſh ground near *Eccleſhall Caſtle*, which they will tell you are bottomleſs becauſe always full and never failing, yet never runing over: There are

[i] *Guil. Piſonis de Med. Braſil.* Lib. 1. p. 7. [k] *Hieron. Cardani de ſubtilitate*, Lib. 2. *ſub finem.* [l] *England deſcribed by Edw. Leigh, in Yorkſhire*, p. 219. [m] *Geo. Agricolæ de natura Eorum quæ effluunt ex terra*, Lib. 3. † *Bernh. Varenii Geograph. Gen.* Lib. 1. cap. 17. prop. 17. ¶ *Geo. Wernerus de admirandis Hungariæ Aquis ſub finem.* [m] *Geo. Agricolæ de naturâ Eorum quæ effluunt ex terra*, Lib. 3.

much ſuch wells too in *Dunſmoore* Meddowes near the village of *Rudyerd* over againſt *Heracles* in the pariſh of *Leek*, which all ſtand equally full in the greateſt *drought* and the *wetteſt* ſeaſon; when I was there in *July* 79 they were all brim full, though the *Rivulets* near them were in a manner dry; they are 8 or 10 in number, and all very deep, yet none of them empties it ſelf into the *River*, but the bigeſt which my worthy friend Mr. *Thomas Gent* found by the plummet to be but 9 or 10 yards deep, though they had always before been eſteemed bottomleſs. And

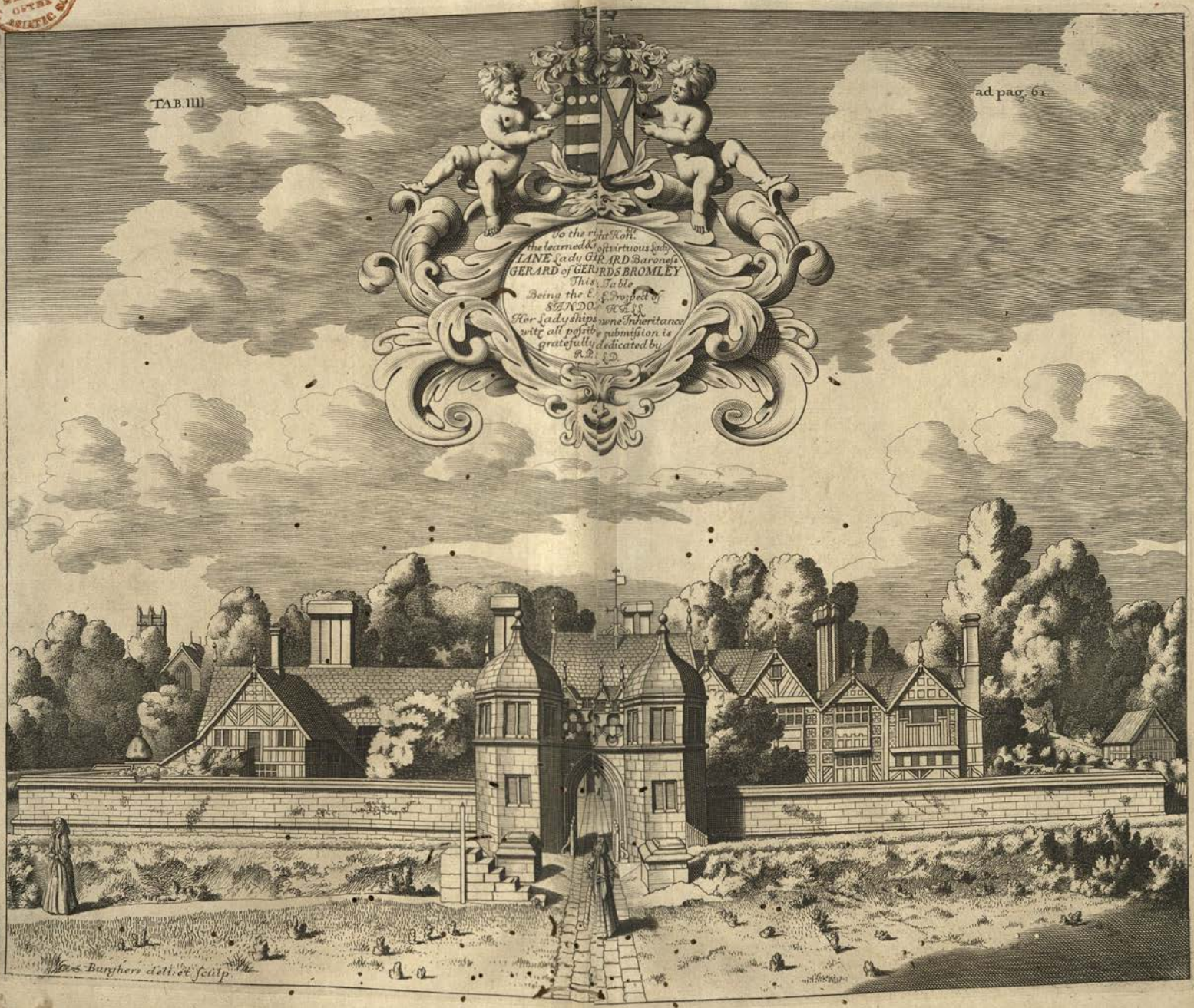
51. *Dr. Boat* informes us that the *Springs* in *Ireland* (where there are very many) for the moſt part of them are of this faſhion, like to a ſmall pit full of water to the brim, and runing forth at the lower ſide, without noiſe or bubling [n], as the biggeſt of thoſe at *Dunſmoore* does; and another of this kind on *Arewas Hays* near the North-Weſt Angle of the *Plate courſe*, which thus always overflowes, and by the vulgar is falſly reputed bottomleſs; though indeed it be not inconſiderable, that being 4 foot ſquare at the top, which it holds for as many foot deep, and after turning into a round of two foot and ½ diameter, and ſituat in a fine plain almoſt level, without any thing deſerving the name of a hill to aſſiſt it, the forementioned ingenious *Mr. Wolferſtan* found the plummet to deſcend in it 42 foot, before it reacht the bottom. For if the greateſt *rains* as *Seneca* aſſerts ſink into the Earth never above ten foot [o], or if as the *Anonymous French Author* believes, who ſeems to have taken a great deal of care in this matter, they never wet above a foot and a half [p]; and if as the ſame *Author* thinks all rains that fall upon plains are ſpent in the nouriſhment of *Plants*, &c. I ſee not how this ſort of *Springs*, whether they run or not, that lye ſo deep, and are conſtantly full if they do not run, as well in *droughts* as *wet* weather, ſhould have their ſupply from *rains*, *ſnows*, &c. or from any other place, but ſome *Magazine* of *waters* in the bowels of the Earth.

52. But it may be it will be objected that though theſe *Springs* are conſtant, yet they are but weak, and ſome of them never profluent, ſo that a very ſmall ſupply even from the *ſuperficies* of the Earth may keep them ſo; which though ſcarce to be granted, yet let us admit for once that it may be ſo; but what then ſhall we ſay to thoſe mighty *perennial Springs* that conſtantly throw forth great quantities of water, without ſenſible abatement in what ſeaſon ſoever? whereof there is one near *Acton Truſſel*, and *Forwel Spring* in *Cank wood* may paſs for another, that do conſtantly ſo; but thoſe which excell all the reſt of this *County* (as well upon this, as

[n] *Ger. Boat's Nat. Hiſt. of Ireland*, Chap. 7. Sect. 1. [o] *L. An. Senecæ Nat. Quæſt.* Lib. 3. cap. 7. [p] *De L'Origine des fontains Partie ſeconde*, p. 167.

other

BOMBAY BRANCH OF THE ROYAL ASIATIC SOCIETY



other accounts hereafter to be mention'd) are the *Springs* at *Willowbridge*, belonging to the Right *Honorable* the Virtuous and moſt Accompliſh't Lady, *Jane* Lady *Gerard* Baroneſs *Gerard* of *Gerards Bromley*, the firſt actual *Encourager* of this *Deſigne*, the Proſpect of whoſe Paternal Seat, is here moſt deſervedly added, *Tab.* 4. whereof there is *one*, that (notwithſtanding it is oppreſt with a vaſt weight of water always lying upon it) throws out conſtantly at leaſt 6 *cubick Inches* of water (and ſo does the Spring at the foot of *Berry bank* near the Village of *Darlaſton*) beſide 60 more great and ſmall (that yield from ſix to one *cubic Inch* of water) which all riſe beſide it, within leſs than 20 yards ſquare; and yet no conſiderable *Hills* near, like to receive rain enough to ſupply theſe waters; that from the *Wells* to the Lodg being but an eaſy aſcent, and thoſe 'twixt *Madley Park* and *Mare*, and of *Aſhley heath*, at too great a diſtance; and (if they do contribute any thing) ſupplying the *Expence* of other *Rivulets* either flowing from them, or runing between them and theſe *Springs*, as the River *Tern* does between *Willowbridge*, and all the *Hills* near *Madeley* and *Mare*.

53. I know that the right Worſhipful the Learned *Sr. Chriſtopher Wren* the now worthy *Preſident* of the *Royal Society* ha's contrived a *Rain-bucket* to meaſure the quantity of *Rain* that falls, which as ſoon as 'tis full, empties it ſelf into a *Ciſtern*, and ſo receives more; which how often it performs is recorded by a *Weather Clock*, as may be ſeen in the *Repoſitory* of the *R. Society* at *Greſham College*[q], by which it might eaſily be computed whether ſufficient *rain* falls *communibus annis* upon the declivities of ground toward any *Spring*, to ſupply the conſtant *flux* of it; which yet I think ha's never been duely obſerved for a whole *year* round: But the forecited anonymous *French Author* ha's been ſo induſtrious and curious in this point, that he computed the riſe of *rain-water* in a *Conſervatory* for divers years, and found the mean riſe to amount to 19 *Inches* and $2\frac{1}{3}$ *lines*; He made alſo an *Eſtimat* of the courſe of the *River Seine* from the ſpring head to *Ainay le Duc*, 3 miles off (where there enters another *Rivulet* that ſwells it) with the declivities of the ground for a mile on each ſide, which was all he could reaſonably think might contribute to its *flux*, and this *ſpace* of three miles long and two broad, he made the *Conſervatory* of the *rain-water* to furniſh the *River* for a whole year: Upon which Tract of ground, being ſix miles ſquare in ſurface, ſuppoſeing that during a whole year, there have fallen *rain* to the height of 19 *Inches* and $2\frac{1}{3}$ *lines* as aforeſaid, it amounts he ſays to 280 *Millions* 899942 *Muids* of water.

[q] *Hiſt: of the Royal Society* part. 2. *ſub finem.*

54. Now that he might give a groſs *Eſtimat* (for he pretends not at all to be preciſe in it) of the Quantity of the water runing away in this *River*, compared with the quantity of *rain* that fell upon that tract of ground before mention'd, he computed (from compariſon made with the River of the *Gobelines* near *Verſailles* where it hath 50 Inches of water by meaſure) that this *River* could not have above 1000 or 1200 *Inches* of water always runing, compenſating the leſſer quantity that it hath at its ſource, with the greater that it hath towards *Ainay le Duc*: And following thoſe that make profeſſion of governing and conveying *ſpring waters*., he judg'd that a *cubick Inch* of water yielded in 24 hours 83 *Muids*, agreeing with thoſe that ſay that a *cubical veſſel* whoſe ſide is two foot *Paris* meaſure holds one *Muid* of water: Or (which is the ſame thing) that a veſſel which contains 83 *Muids* of water will make an *Inch* of water run continually for 24 hours; ſo that for a whole year (which is near 366 times as much) there will be required 30378. *Muids* to make an inch water flow conſtantly: which 83 *Muids* (to put them into *Engliſh* meaſure) make 68 *Hogsheads* and 42 *Gallons*, *Ale* or *Beer* meaſure; every *French Muid* containing 16777 $\frac{216}{1000}$ cubic Inches *Engliſh*, which is 59$\frac{494}{1000}$ or 59 *Ale* or *beer Gallons* and $\frac{1}{2}$ *proxime*; ſo that accounting 72 *Gallons* to the *Hogshead*, the *Muid* contains ſcarce $\frac{3}{4}$ of a *Hogshead*.

55. Theſe *particulars* being granted him, he concludes that if one *Inch* of water require 83 *Muids* for a day, then 1200 *Inches* require 99600 *Muids*, wherefore for a whole year, which is near 366 times as much, there will be required 36453600 *Muids*; which being deducted from the 280899942 *Muids*, which he ſuppoſed to fall annually upon the *Conſervatory* or tract of Land of ſix miles ſquare that he judg'd might contribute to the *flux* of that *river*, there remains 244446342 *Muids*, i. e. 'twixt 6 and 7 times as much as was ſpent in the maintenance of the *River*: which he thinks ſo abundantly exceeds what is ordinarily required for other *occaſions* and *loſſes*, ſuch as the nouriſhment of *Plants*, ſupply for *vapors*, extraordinary ſwellings of the *River* whil'ſt it *rains*, and *deviations* of the water other ways, that there needs but the ſixt, at moſt but the fift part of the *rain* and *ſnow water* that falls, to make a *River* run the whole year[r]. Which indeed is ſo vaſt a diſproportion, that one would think at firſt ſight that the *queſtion* were determin'd; and there is no queſtion but it had been ſo, did all the *Conſervatories* and *Springs* in the *world* hold ſuch a diſproportion, though it were leſs by one half.

56. But let us ſee what this *Author* muſt very likely have con-

[r] *De L' Origine des Fontains ſeconde partie. from* pag. 198. *to* pag. 207.

cluded

cluded in caſe he had conſidered ſuch *Springs* as thoſe above mention'd at *Willowbridge* § 52, where the bigeſt conſtantly throws out (without any ſenſible abatement) at leaſt ſix *cubick Inches* of water, beſide 60 more that yeild other different proportions, from 6 *inches* down to *one*, and all theſe within (perhaps little more) than 10 *yards* ſquare ſo that they may all without difficulty be eſteem'd as *one*; Had, I ſay, this *Author* but lighted on ſuch *Springs* as theſe, whoſe *Conſervatory* too muſt be very narrow, for the River *Tern* running cloſe by them, cuts of all contribution from *one* ſide, and receives in great meaſure what elſe might have been ſuppoſed to come from the *other*, he had found perhaps near as great a diſproportion between the *Spring* and the *Conſervatory*, as he did before between the *Conſervatory* and the *Spring*: For granting *Willowbridge Park* to be the *Conſervatory* for theſe *Springs*, whoſe ſurface we will alſo allow to be a *mile* ſquare, and that the *rain* annually falling upon its *ſuperficies* doth amount to 19 Inches and $2\frac{1}{3}$ lines, yet ſuppoſing too (what cannot be reaſonably denyed) that great part of the *water* that this tract of ground contributes is received all along into the *River* both above and below the *Springs*, it cannot well be thought (the whole *Conſervatory* being but $\frac{1}{8}$ part of that for the *Seine*) that it can furniſh $\frac{1}{100}$ part of water in 10 *yards* ſquare, for which the *French Author* allowed no leſs than *three miles* in length.

57. But we will grant notwithſtanding the differences of the *latitudes* of the *Conſervatories*, and of the *longitudes* for the iſſues of the *waters*, that the *waters* of the *Conſervatory* of *Willowbridg* do ſo concenter (which is very improbable) as to furniſh $\frac{1}{10}$ *part* within that *little ſpace*, of what the *French Authors* did in 3 *miles* in length, that is 28089994 *Muids* of water in a whole year, yet the diſproportion will be great between theſe *Springs* and their *Conſervatory*: For the greateſt of theſe *Springs* alone (at the rate of 83 *Muids* for every *cubic Inch*) vents 2988 *Muids* or 2469 *Hogsheads* dayly; that *is*, 1093608 *Muids*, or 903654 *Hogsheads* yearly; to which add the other 60 *Springs* venting different proportions from 6 *cubic Inches* down to *one*, the mean whereof will be each 3 *cubic inches*, they vent each 546804 *Muids*, or 451827 *Hogsheads* yearly; that is all of them together 32808240 *Muids*, or 27109620 *Hogsheads*; which 32808240 *Muids* being added to the 1093608 *Muids* of the greateſt *Spring*, amounts to 33901848 *Muids*, which is 4811854 *Muids* more then 'twas ſuppoſed the *Conſervatory* could furniſh in a year: without allowance made for the great quantities that muſt needs be ſpent in the nouriſhment of *Trees* and other *Plants*, and the much greater in *Exhalations*; For if we may believe experience, the *vapors* that

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are exhaled into the *Air* for *Clouds* and diſtill again in *rains*, come not ſo much from the *Seas*, as from the *moiſture* of the *Earth*; thus we ſee that in uliginous boggy *Countrys* (ſuch as *Ireland*) the *rains* are frequent, whereas in the Sandy deſerts of *Afric* and *Arabia* they have no *rains* at all: Not to mention with what difficulty *ſalt waters* do evaporat, or that our moſt laſting *rains* come from the *Eaſt* and *South* i. e. from the *Landward* and not from the *Sea*: to which add that the greateſt *rains* obſtruct the pores of the *Earth* by filling them with dirt, ſo that they cannot deſcend above a foot and ½ (which is owned by this Author) and are therefore for the moſt part carryed away in *floods*: Whence 'tis yet plainer how unlikely it is that ſuch mighty *Springs* as theſe ſhould be maintained by *rains* falling on ſuch a *Conſervatory*.

58. And yet how inconſiderable are theſe Springs at *Willowbridg*, in compariſon of ſome others there are in the world, and particularly of one in the *French Authors* owne *Country*, the fountain head of the River *la Sorgue* in the *County* of *Venaiſſin*; which ſays *Gaſſendus*, *ab ipſa ſtatim ſcaturigine evadit navigabilis*, i.e. that comes from ſo great a *Spring*, that it is navigable preſently at its very riſe[r]: whereof had he delivered us ſo nice an account as he ha's done of the other, he had certainly given himſelf and the world better ſatisfaction. But for clearer evidence of the matter in hand, becauſe the *Conſervatories* for ſingle *Springs* are always as uncertain as they are unequal, let us conſider the immenſe quantities of water that are diſembogued into the *Sea* by all the *Rivers*, and make an *eſtimat* whether an annual riſe of 19 *inches* and $2\frac{1}{3}$ lines over the whole *face* of the *Earth* will ſuffice for them; the *queſtion* ſeeming to be rendred much leſs difficult, by how much 'tis enlarged, there being now but one, an t'other, to be conſider'd, whereas before every little *Spring* was a new *queſtion*. To come then quick and cloſe to the buſineſs,

59. I will found my computation upon that of *Ricciolus* in his *Almageſtum novum*, where he tells us that the *Eridanus* or *Po* being but 1000 paces broad, and 15 foot or 3 paces deep (a very inconſiderable *River* in reſpect of ſome others) pours forth into the *Adriatic* 18000000 of *cubical paces* of water every hour (ſuppoſeing it to run but ſix miles in that time) that is 432000000 *per diem*, which is near 155520000000 of cubic paces *per Annum*[t], and yet I take this to be a *River* of the third and loweſt *Claſs* of *great Rivers*, ſcarce ſo big as the *Thames* or *Severn* in *England*, or

[r] *Pet. Gaſſendi Phyſ. Sect.* 3. *Memb. pr.* Lib. 1. cap. 3. *near Blawbeher in the Dukedom of of Wurtemberg in Schwabenland is much ſuch another, that vomits up water in ſo great abundance that the River at the mouth of it is a furlong broad, Joh. Herbinii de Cataractis.* Lib. 1. cap. 11. [t] *Joh. Bapt. Riccioli Almageſti novi*, Lib 2. cap. 13.

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the *Rhoſne* in *France*, whereof there may perhaps be above a hundred in the *world* (as well as theſe) not thought conſiderable enough to be numbred by *Varenius* in his *ſecond Claſs*: In which he places the *Rhine*, the *Elve*, *Euphrates*, *Tanais*, *Boryſthenes*, *Petzora*, *Peſida*, *Tabab*, *Irtiis* &c, to the number of *twenty*: And in his *firſt*, the *Nile*, *Niger*, *Danow*, *Oby*, *Ganges*, *Jeniſcea*, *Parana*, *Rio de la Plata*, *Orellana*, *Maragnon*, *Omaranna*, *Canada* or *of St. Laurence*, *Janſu*, *Volga*, &c. to the number of 16 or 17[v]: The laſt whereof [the *Volga*] alone (as the ſame *Varenius* ha's computed it) throws forth water ſufficient within a year into the *Caſpian Sea* to cover the whole *Earth*[w]; which allowing for the depth of the innumerable *Valleys*, will amount at leaſt to as much as the 19 *inches* and 2⅓ *lines* can come too: Nor ſurely can that of *St. Laurence* pour forth leſs, it runing as the ſame *Author* informs us 600 *German* miles, and being broad at the mouth as *Ricciolus* declares, no leſs than 60 (I ſuppoſe he means *Italian*) miles[x].

60. Now if the *Po* do vent into the *Adriatic* Sea 15552000000 of *cubic paces* in a year, the River of *St. Laurence* being 60 times as broad (not to mention the likelyhood of its being much deeper) muſt vent at leaſt nine hundred thirty three thouſand, one hundred and twenty Millions of *cubical paces* of water, which (to depend upon *Varenius's* ſupputation, and the near equality of the two *rivers*, to avoid multiplicity of *Arithmetic*) muſt either of them expend water enough to cover the *ſuperficies* of the whole *Earth* to the height at leaſt of 19 *Inches* and 2⅓ *lines*: But if neither of theſe will be thought ſufficient to do it, certainly it cannot be denyed to the *Argyropotamus* or *Rio de la Plata* otherwiſe call'd *St. Chriſtophers* which I take to be the bigeſt River in the World, the ſame *Ricciolus* expreſly aſſerting that *Nilus*, *Ganges*, and *Euphrates* put all together will not equal it; its *mouth* being 90 *miles* broad, and runing with ſuch violence into the *Sea*, that it makes it freſh for 200 *miles* forward[y]. Yet if any *Man* will be ſo unreaſonable as to grant it to *neither* of theſe, nor to all *three* together, ſurely it will be difficult to find one, that will be ſo hardy as to deny it theſe, and 1000 more at leaſt that there are in the *World* of all magnitudes, which put together, in my weak judgment cannot but exceed the 19 *Inches* &c. upon a modeſt account leſs than *three*, if not *five hundred* times over: Whence the *Reader* may be ſatisfyed that a *Conſervatory* of water over the ſurface of the *Earth* of ſuch a *height*, is not like to ſupply all the *Rivers* of the *World*.

61. And if the *cold freſh water Rivers* be not furniſh't from *Rains*, much leſs ſure can the *hot*, *Salt*, or *bitter* ones have their

[v] *Bernh. Varenii Geograph. General.* Lib. 1. cap. 16. *Prop.* 27. [w] *Ibid. Prop.* 5. [x] *Joh. Bapt. Riccioli Geograph. & Hydrograph. reformatæ*, Lib. 6. cap. 19. [y] *Ibidem.*

origine thence; for ſuch we find there are in very good *Authors*: Whereof *Peter Martyr* ſays there is one in *Cuba* ſo large that it is *navigable*, and yet ſo *hot* that one can hardly endure to touch it[z]; and there is a *Spring* in *Ireland* that is as *hot* as *water* can poſſibly be made with *fire*; and in *Japan* another yet much *hotter*, it retaining heat as *Caronius* writes 3 times longer than other water heated with *fire*[a]: As unlikely too are the *Salt* or *bitter Rivers* ſuch as *Exampeus* near *Callipadum* in *Aſia minor*[b], to have their maintenance from *rains*; or any *Bathes*, *Saltworks*, or other *Medicated waters*; nay ſo far are they from it, that by the fall of *rains*, they are all much *prejudic'd*, if not rendered wholy *uſeleſs* by them, at leaſt for ſometime; the *Bathes* being *cooled*, the *brine weakened* by the mixture with the *freſhes*, and all *Medicinal Springs* ſo diluted, that they become thence *ineffectual*, till theſe *rain waters* are carryed off again.

62. Not that the *rains* deſcend ſo low as where the waters are *heated* by *fermentations* or otherwiſe, or made *ſalt* by the *Mineral glebes* they paſs through; but by mixing with them here above at their *exit*: for it is plain that moſt of the *rain-waters* (as ſhall be further proved hereafter) which are not preſently carryed away by the *Rivulets*, ſtand in *ponds*, *high-ways*, or other *hollows* in the ground, till the *Sun* exhales them into *Clouds* again; and never deſcend into the ſolid *Earth* (which is ſufficient for the nouriſhment of all ſorts of *Plants*) above ten foot at moſt; whereas the *heats* for the *Bathes* lie very deep: For who ever met with any near the ſurface of the *Earth* ſufficient to make *waters* ſo *hot* as they are here in *England* at the *Bath*, or *St. Vincents* rock, or at *Porcet* near *Aken* in *Germany*, where they have a little hole in the *ſtreet* which they call *Hell* cover'd with a moveable *Grate*, the water whereof is ſo *hot*, that the *neighbours* round about in the *Summer* time, when they have no *fire*, boyle their *Eggs* in it (letting them down in a *Net*) which it will do to *hardneſs*, in a little ſpace[c]: Or whoever met with any *rocks* of *natural ſalt* ſo near the *day* (as they call it) like to make ſuch *brine* as they have at the *ſaltworks* in *Cheſhire*, or at the Brine pits in the Pariſh of *Weſton* in this County: The *Medicated waters* indeed are very weak in compariſon of theſe, yet being ſpoiled with *rains* as well as the reſt, 'tis probable at leaſt that none of them come from *rains*, *dews*, &c.

63. Further add that if it be ſo unlikely that the *cold* or *hot*, *freſh* or *Salt Springs* come from *rains* where there fall plenty of

[z] *Sommario de L' Indie Occidentali del S. Don Pietro Martire* cap. 7. p. 6. *Stamp. Venet. L' Anno* 1565. [a] *Bernh. Varenii Geograph. Gen.* Lib. 1. cap. 17. *Prop.* 7. [b] *Ibid.* prop. 9. [c] *Lod. Rowzee M. D. Treatiſe of Tunbridg waters. cap.* 4.

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them; more improbable is it ſtill (that I ſay not impoſſible) that the *Springs* in ſuch *Countrys* where there falls little *rain* ſhould be ſupplyed from it: and yet we are credibly informed that the *Springs* in ſuch places flow as plentifully as elſewhere. In the Iſle *Mayo* (one of thoſe of *Cape Verd*) which lyeth in the *Torrid Zone* 13 degr. and 30 m. *North* of the *Æquator*, it never *rains* but 3 weeks in *July* in the whole year, yet there riſes a *Spring* of pure freſh water, makeing a *Rivulet* about 14 foot wide and two deep in the middle of the *Iſland*, before it has run above halfway to the *Sea*; of which dimenſions it was found by the ingenious Mr. *James Young* of *Plimouth* after ten months *drought*; nor could he perceive by the banks that it could run much larger after the *ſhowers* in *July*, than it did then after ſo long a want of them[d]: Whence 'tis evident there may continue a conſtant *large flux* of *water* for ten or eleven months together without *recruits* from *rains*. Which being ſo remarkable a caſe, I cannot but recommend it to the examination of our curious *French Author*, deſireing him to let us know, after allowance made for what the dry and parched Earth doth drink up of the *ſhowers* (the *Iſland* being ſi-that in the *Torrid Zone*) how many *Inches* there will be left (and *lines* too, for I know he muſt be critical) to ſupply ſuch a *Current*. And after he has done with that, let him next conſider another at *Rotunda* in the *Weſt Indies* where it *rains* in like manner but once a year, which though a very ſmall *Iſland*, has a *Spring* riſeing in the middle of it, ſo very *profluent*, that as we are told the whole *Iſland* would be ſhort in proportion for a *Conſervatory* ſufficient to ſupply it, though it *rain'd* there conſtantly all the year round[e]. As perhaps might the *Strophades*, which as the learned and ingenious Sr. *George Wheeler* tells us, are *Iſlands* judg'd diſtant about fifty miles from *Zant* and thirty from the *Morea*, lying very low, and the biggeſt not above five miles in circuit; nevertheleſs they report (ſays he) that there is ſuch plenty of *freſh water* there, that one cannot thruſt a ſtick into the ground but the water guſhes out in the place. Much leſs ſtill would the rock in the *Thracic Boſphorus*, on which ſtands the *Sconce* call'd the *Maiden-Tower*, be ſufficient for this purpoſe, which, as the ſame worthy *Author* alſo tells us, though not above 30 yards about, and encompaſſed with a deep Sea, yet has a *fountain* of *freſh water* ſpringing from it[*].

64. And as there are *Springs* where there is little or no *rain*, ſo in many places in the *World* there are no *Springs* at all, though there fall *rain* enough, and all other *requiſites* in being that this

[d] *Lecturæ Cutlerianæ de potentia Reſtitutiva* p. 28. [e] *Ibid.* p. 32. [*] *Sr. Geo. Wheelers voyages* p. 45, 46, *and* 208. *vide etiam Cardanum de varietate* Lib. 1. cap. 6. *in initio, ubi de fonte dulcis aquæ in Maris ſcopulo: of which ſee* § 77. *of this Chapter.*

Hypotheſis demands, ſuch as *loſe pervious Earth* to receive, *Mountains* to contain, and a *well luted bottom* to ſupport; as the ſame ingenious Mr *Iames Young* obſerved at *Lipari* an Iſle near *Sicily* where all theſe concurred, and yet there *Springs* in it not one drop of water[f]; whence it manifeſtly appears (whatever is pretended) how unapt *rains* are to cauſe *Springs*, though they may and doe ſometimes accidentally increaſe them: But we need not goe ſo far as the fruitfull Iſle of *Lipari* for ſatisfaction in this point, it being plainly ſo in a large tract of ground in the *County* of *Kent*, there riſeing not one *Spring* all along between the *Dover road* to *London* and the ridge of hills above *Charing*, *Lenham*, and *Maidſtone*; from *Oſpringe* to the banks of the *River Medway*; which I take to be about 17 *miles* in length, and about 5 in bredth, and yet the *Earth* in all this *Country* is bibulous enough of *rain*, and has *Hills* (if they be ſo requiſit) for *Ciſterns* to contain it, and a cloſe firm bed of *Chalk* at 10 or 15 foot diſtance underneath to ſupport it, that it ſink not too deep into the *Earth*: Underneath which *Chalk* 'tis true there are plentiful *Springs* enough; but no man that knows the place, or is well inform'd about it, can imagin that theſe can come from the *rains*; the bed of *Chalk* underneath the uppermoſt *mould*, being altogether impervious, and ſometimes threeſcore, but very ſeldom leſs than ten or twenty *fathom* thick: which too certainly muſt be the reaſon that the *Sea Springs* doe not riſe here as in other *places*, the bed of *Chalk* being as impenetrable to them below, as to the *Rains* from above.

65. Thus haveing made it probable at leaſt that moſt *Springs* doe not ſo much depend upon *rain* as ſome would have us beleive, let us proceed from negative to poſitive *arguments*, and ſee whether we cannot prove that the *Springs* are actually furniſh't by *ſubterraneous paſſages* from the *Sea*, or that there is really ſuch an *inferior Circulation* of *waters* between them, as that the *Rivers* never *fail*, nor the *Sea* ever grows *full*. That ſome *Springs* are maintained immediatly from the *Sea*, I take to be ſo certain, that there is ſcarce a *maritime Towne* in any nation but will readily ſubſcribe it, their *waters* being generally brackiſh, but more or leſs according as they are nearer, or more remote from the *Sea*: *Putei effoſſi quo magis à mari diſtant, eo minus ſunt ſalſi* ſays *Cardan*[g], and ſo the aforeſaid Mr *James Young* found it at *Plimouth*[h], and thus I know it to be upon moſt of the *Sea-coaſts* of *England*; thus *Cæſar* in his diſtreſs at *Alexandria*, digging on the *Shores* found great quantities of *freſh water* ſpringing into his *pits* in one nights time[i]; and the

[f] *Ibidem.* p. 30. [g] *Hieron. Cardani de ſubtilitate* Lib. 2. p. 166. *Edit. Baſil.* An. 1582.
[h] *Lect. Cutlerian. de potentia reſtitut.* p. 31. [i] *A. Hirtii Panſæ Commentar. Lib. de Bello Alexandrino* cap. 9.

ſame

ſame Mr. *Young* tells us, that the *River* at the Iſle *Mayo* diſembogueing it ſelf into the *Sea*, remote from the *Roads* at an inconvenient place for *boats*, the *Mariners* are conſtrained to dig *wells* in a bank of *ſand*, which though between the *Ocean* and the *pickle* of a *Salt pond* that lyes between this *bank* and the *Iſland*, yet in 24 hours they can get 3 or 4 foot in depth of *clear* water, which viſibly trickles through the *ſand* and cannot poſſibly be other than *Sea* water, by reaſon of the ſituation of the *bank* and *Well*; yet taſting ſo little of *Salt*, that it is *drinkable*, and fit to boile meat in [k]: From all which I think 'tis pretty manifeſt in the firſt place, that *Salt water* will gradually become freſh by *tranſcolation*.

66. So that it only remains to ſhew, that it may and does convey it ſelf to *great diſtances* not only by this *means*, but by mighty *indroughts*, which perhaps are after divided into ſmaller *paſſages*, that at length diminiſh (before they come very near the *Spring head*) into *capillaries*, and laſtly being ſomwhat more obſtructed, become the *Calenders* themſelves; which that it really does, it is more than probable, from the *ſudden ſtoppage*, and *intermiſſions* of *Rivers* without mention of *droughts*, and from the change of *freſh water Rivers* into *Salt ones*: For how ſhould ſuch *Rivers* as the great River *Trent* that riſes in this *County* become *dry* of a ſudden as it was obſerved to be at *Nottingham* (and no queſtion was ſo at other places) *An.* 1110. *temp.* H. 1. from the *morning* till 3 in the afternoon as *Knighton* informs us [l], had not its *Springs* been ſupplyed by ſuch *ſubterraneous paſſages*, which being caſually ſtopt by the fall of *Earth*, could not furniſh water till ſuch time as it could work its way again, through that fallen *Earth*, or find ſome other *paſſage*. Four years after on the ſixt of the *Ides* of *Octob. An.* 1114. as *Simeon Dunelmenſis* and *John Bromton* acquaint us, the *River Medway* in *Kent* for ſeveral miles together did ſo *fail* of *water*, that for two whole days the ſmalleſt *veſſels* could not paſs upon it [m]: The ſame *Authors* alſo tell us that the River *Thames* ſuffer'd the ſame lack of water at the ſame time, but *Matthew Paris* ſays expreſsly it was on the fourth of the *Kalends* of *April* half a year before, when he relates it was ſo *dry* for two days that the *Sea* it ſelf alſo *failed* of reaching the *ſhore* for 12 miles forward, alſo for the ſame two days [n]; the other *Authors* adding, that *Children* could wade over between the *Bridg* and the *Tower*, and that it was not above the *knee* under the *Bridg* it ſelf.

67. And yet they give us no account of any *drought* that occaſion'd any of theſe; nor indeed was it likely ſince their *durance*

[k] *Lectur. Cutler. de potentia reſtitut.* p. 29. & 32. [l] *Hen. Knighton Canonici Leyceſtrenſis de Eventibus Angliæ* Lib. 2. [m] *Simeon Dunelmenſis Hiſt. de geſtis Regum Ang. & Chronicon Joh. Bromton. in* Anno 1114. [n] *Matth. Paris Hiſt. Ang. in Hen.* 1. An. 1114.

was ſo *ſhort*; they muſt moſt probably therefore happen upon ſome *ſtoppage* of the great *maſter Pipes* that ſupplyed them, which lye deep in the *Earth*, ſo that they could not run again till they had *forced* their *paſſage*: which perhaps may be alſo the true *natural cauſe* of the ſudden ſtanding of the Rivers *Elva*, *Motala*, and *Gulſpang* in *Sweden* ſometimes for 2 or 3 days, which *Biazius*, *Herbinius*, and *Loccenius* tell us, happen'd in the *years* 1566. 1632[o]. 1638, 1639[p]. 1665[q]. For we cannot well ſuppoſe that ſuch mighty things ſhould happen from any *ſtoppage* of the ſmall *ductus's* of *rains* and *dews*, which are many, and lye diſperſt at great diſtances, and cannot in any likelyhood be ſtopt thus together: whereas upon the obſtruction of any of the great *Canales* that lye deep and come immediatly from the *ſea*; it is eaſy to apprehend how the *capillary Tubes* proceeding from them may be all ſtopt together. And as the *Communication* between the *ſprings* and *ſea* ſeems probable from the *obſtructions* of the *paſſages* between them, ſo it ſeems to be manifeſt from the too much *opening* of them: Whence it is that ſometimes *freſh water-ſprings* have turned to *ſalt ones*; the *ſea water* which ſupplyed them (having gotten a wide open *Channel*) being upon this account not ſufficiently *percolated*, and ſo remaining *ſalt*: as it happen'd once in *Caria* as *Pliny* reports, where the *River* near the *Temple* of *Neptune* which was known before to be *freſh* and *potable*, turned all upon a ſudden into *ſalt water**, which it could hardly have done (I think) had it been ſupplyed by rains.

68. But theſe *ſubterraneous communications* appear yet more manifeſt, from the many *Springs* in the *World* that ebb and flow with the *Sea*, ſuch as that mentioned by *Camden* in the *Cantred* of *Bichan* in *Caermarthinſhire*, upon the Hill where *Careg Caſtle* ſtood[r]; that of *Marſac* in *Gaſcony*, which ſays *Varenius* exactly obſerves the *Tides* of the *Garonne* at *Burdeaux*[s]; and another that *Gaſſendus* mentions in a little *Iſland* at the mouth of the River *Timavus*[t]: But theſe are inconſiderable in compariſon of that on the top of a high *Mountain* in the *Province* of *Connaght* in *Ireland* which though it punctually obſerve the motions of the *Sea*, yet we are told is a *Spring* of *freſh water*; and ſo is that call'd *Lou-Zara* among the mountains of *Cabret* in *Gallæcia* in *Spain*, which alſo ebbs and flowes, though it be diſtant no leſs than 20 leagues from the *Sea*[v]; To which let me add (what exceeds all the reſt)

[o] *Joh. Loccenii Hiſtoriæ Suecanæ* Lib. 7. p. 370. & Lib. 8. p. 606. *Edit. Franc. & Lipſiæ* An. 1676. [p] *Joh. Biazii Senioris Hiſtoriæ Eccleſ. Succ.* Lib. 8. cap. 14. [q] *Joh. Herbinii de admirandis mundi Cataractis* Lib. 4. Differt. 8. cap. 17. * *C. Plinii ſecundi Nat. Hiſt.* Lib. 31. cap. 5. [r] *Camden in Caermarthynſh.* [s] *B. Varenii Geograph. Gen.* Lib. 1. cap. 17. prop. 17. [t] *Pet. Gaſſendi Phyſ.* §. 3. *Memb. pr.* Lib. 1. cap. 7. [v] *Bern. Varenii Geogr. Gen.* Lib. 1. cap. 17. prop. 17.

that

that on the top of that part of the Mount *Erminius* in *Portugal*, which lifts it ſelf up above all the reſt in the manner of a *Pyramid*, (which part the *Inhabitants* for diſtinction call Mount *Cantari*) *ſumma in cacumine* in the very top of this ſays *Vaſconcellius*, there is a *Lake* (many paces about) that moſt accuratly obſerves the *reciprocation* of the *Sea* [w]. Which I ſuppoſe may be enough to juſtify my *ſentence*, ſhould I pronounce it for *certain*, that there are ſuch *communications* between the *Springs* and *Seas*.

69. Yet for further *Evidence* it muſt not be omitted, that there are many *Lakes* in the *World* of *Salt water*, that have no ſuperterraneous Vents into the *Sea*, and ſome of them full of *Sharks* and other *Sea fiſh*; as that in the *Valley* of *Cajovani* in the *Province* of *Bæinoa* in *Hiſpaniola* called *Haguygabon*, which ſays *Peter Martyr* is 30 miles long and 12 broad, and though it ſwallow no leſs than 24 *Rivers* of *freſh water* that flow from the *Mountains*, yet ſuch mighty quantities of *ſea waters* ſometimes boyle into it (which bring *Sharks* and other *ſea fiſh* along with them) that it is *ſalt* notwithſtanding; And as it ſomtimes throws forth, ſo at other times again it ingulfes the *waters* with that mighty violence, that it often draws in the *Fiſhermen*, boats and all, which it never throws up again upon the *ſhoars*, as things uſually are that are ſwallowed by the *ſea*. He tells us alſo of another of this kind in the ſame *Iſland*, that anſwers the former in all reſpects, but in greatneſs [x]. And *Varenius* informs us that there is another in the Iſle *Cuba* two leagues round, that is alſo *ſalt*, and has *ſea fiſh* in it, though it likewiſe receive freſh *Rivers*. He tells us alſo of another in *Peru*; another in *Madagaſcar*; and the *Lake Aſphaltites*, though it receive the freſh water River of *Jordan*, is not ſweet; and may paſs for another [y].

70. To which add the vaſt *Lake* or rather *Caſpian Sea*, which though it take in all the waters of the *Volga* which as has been ſaid before throws into it enough in a year to cover the whole *Terraqueous globe*, beſide many other great *Rivers*; yet is *ſalt water*, has *Sea fiſh* in it, and never *overflowes*; No more than the *Mediterranean ſea* it ſelf, which in regard it never vents it ſelf into the *ſea*, but receives *water* from it at both ends, from the *Atlantic* by the ſtraights of *Gibraltar*, and from the *Euxin* through the *Thracic Boſphorus*, as it were from two *Rivers*; may paſs too for a *Lake*: and yet I ſay though this *Sea* perpetually receives thoſe vaſt *influxes* of *water*, it never *overflowes* ſo much as the

[w] *Ant. Vaſconcellii Deſcriptio Regni Luſitan.* cap. 5. [x] *Petri Martyris Anglerii de Orbe novo Dec.* 3. cap. 8. [y] *Bernh. Varenii Geograph. Gen.* Lib. 1. cap. 15. prop. 7.

low

low *Country* of *Egypt*. Hither too may be referred all *Rivers* that are ſwallowed by the *Earth* and never riſe again, ſuch as thoſe in the *Province* of *Caizimu* in *Hiſpaniola*, where there are ſeveral, that after they have run fourſcore and ten miles, fall all into a great *Cave*, under the root of a very high *Mountain* [z]. Now how theſe *Lakes* ſhould come at all to be *ſalt*, or how *Sea fiſh* ſhould be brought into them? or what ſhould become of the mighty quantities of water received into ſuch vaſt *Lakes* as the *Caſpian* and *Mediterranean Seas* that never *overflow*, or into that great *Cave* in the *Province* of *Caizimu*? unleſs there are ſuch *cummunications* between the *Seas* and ſuch *Lakes*, for the conveyance of *ſalt waters* and *fiſh*, and for *expence* of the others, in ſupplying of *Rivers*; will be difficult I am afraid to be reſolved to ſatisfaction.

71. Again that there are ſuch *paſſages* is further evident, from the many heterogeneous bodies belonging to the *ſea*, that are many times found by diging in the bowels of the *Earth*, ſuch as the ſhells of *Sea fiſh*, *Maſts*, *Anchors*, parts of *Ships* &c. ſuch were the ſubterraneous *Cockle*, *Muſcle*, and *Oyſter ſhells* found in the diging of a *Well* at Sr. *William D' Oylies* in *Norfolk* many foot under ground, and at conſiderable diſtance from the *ſea*, of which the ingenious Author of *Mercurius Centralis* has given us an account; and ſuch was the *Maſt* He mentions dug out of the top of a high hill in *Greenland* with a *pulley* hanging to it [a]: But the moſt prodigious ſtory that we have of this kind, is that of *Baptiſta Fulgoſus*, *Ludovicus Moſcardus*, and *Theodorus Moretus*, who tell us that at the village of *Bern* in *Switzerland* An. 1460. in a *Mine* 50 fathoms deep, there was dug up a *whole Ship*, with its *Anchors* and broken *Maſts*, in which were the *Carcaſes* of 40 *Mariners*, together with their *Merchandiſe*: which *Fulgoſus* more particularly tells us, as a thing done in his owne time, and ſeen by many grave and ſober men, from whom (*qui in repræſentes fuere*) He ſays He received a *perſonal* account of it [b]. And yet this will not ſeem ſo very ſtrange neither, if we conſider what mighty *Charybdes* there are in the *World*, whereof *Andreas Moralis* informes us He met with one upon the coaſt of *Hiſpaniola* (which no doubt was it that ſupplyed the *Lake* aforemention'd §. 69. of this *Chapter*) where the water was drawn with that violence into the *Earth*, that notwithſtanding their utmoſt endeavours, the *Ship* hardly eſcaped being ſucked into it [c].

[a] *Petri Martyris Anglerii de novo Orbe Decad.* 3. cap. 7. [a] *Mercurius Centralis*. p. 74.
[b] *Bapt. Fulgoſi Dict. & Fact. Mem. Collect.* Lib. 1. c. 6. *Muſeo di Lud. Moſcardo*, Lib. 2. cap. 111. *Theo. Moreti Tract. de Æſtu maris* cap. 21. §. 275. 278. [c] *And. Moral. Decad.* 7. cap. 8.

72. But

72. But that which exceeds all the reſt in the *world* (to omit that on the coaſt of *Sicily*, that in the River *Somme* in *Picardy* betwixt *Amiens* and *Abbeville* [d], and that of *Paulus Warnefridus* [e]) is the *fluxus Moſchonius*, the *Moskoeſtroome* or *Maalſtroome*, between the *Iſles* of *Moſkoe*, *Weroe*, *Roeſt* and *Loufouden*, on the coaſt of *Norway*, now by ſome called the *Mousk*; but antiently ὀμφαλὸς θαλάσσης by *Homer* [f]; *umbilicus Maris* by *Paulus Diaconus*; *anhelitus Mundi*, by *Mela*; *Nares Mundi* by *Solinus*; *Acheron* by *Suidas*, and *Orpheus* in his *Argonautics*; and τάρταρος by *Plato* and *Ariſtotle*; Which as *Ortelius* deſcribes it, is no leſs than 40 miles round, and upon the *Tides* comeing in, ſwallowes in a manner the whole *ſea* with an incredible noiſe, drawing in *Ships*, *Whales*, or whatever elſe comes within its compaſs, and daſhing them to pieces againſt the ſharp rocks, that there are in the deſcent of this dreadfull *Hiatus*; and then upon the *Ebb* throwing them out again with as prodigious a violence, in ſo much that ſome have attributed the whole *flux* and *reflux* of the *ſea* (and not without ſome reaſon) to this vaſt *Vorago* [g]. Now though indeed it be unlikely that the Ship found at *Bern* ſhould be drawn in here, and carryed underground to ſo great a diſtance, all things ſuck't in here being ſuppoſed to be thrown out again as *Peter Clauſſon* and the learned and ingenious *Olaus Rudbeck* have deſcribed it, who think too with *Brinckius* that there is no bottomleſs ſubterraneous paſſage *, though 'tis hard to think what leſs could receive ſuch a prodigious *Maſs* of *waters* [h]; Yet who knows what vaſt Indraughts there may be in the *Mediterranean* (if not done by that near *Sicily*) that may be ſufficient to perform it? For that there muſt be ſuch paſſages and immenſe ones too, muſt be taken for evident from the conſtant conſumption of the waters that are ſo conſtantly thrown in, unleſs any Man can ſhew us which way elſe they are diſpoſed off.

73. I know it hath been conjectur'd that the waters received into the *Mediterranean* and the *Baltic* (to which alſo the water always ſets inward through the *Sound*) are carryed forth again by an *under current* in the *ſtraights* leading into thoſe ſeas: and it muſt not be denyed but there may be ſuch a thing as a contrary motion of water in the ſame channel: thus the *Watermen* at *London* will all tell you, that at the turning of the water in the river *Thames*, it will be tide of *ebb* by the ſhore for ſome time, when it is yet *flood* in the middle; and ſo *vice verſa*, *flood* by the ſhore, when yet *ebbing* in the middle. So in the *Downes*

[d] *Bernh. Varenii Geograph. Gen.* Lib. 1. cap. 16. Prop. 28. [e] *Pauli Warnefridi de geſtis Longobardorum* Lib. 1. cap. 6. [f] *Homeri Odyſſ.* Pal. a. v. 50. [g] *Abrah. Ortelii Theſaur. Geogr. in verbo Umbilicus.* * *Olav Rudbeck Atlanticæ* Lib. 8. § 1. [h] *vid. Rationes Joh. Herbinii de Cataractis marinis* Lib. 2. Differt. 4. cap. 9. *ubi etiam Mappæ hujus Voraginis.*

they will tell you, where the Sea runs *tide* and *half tide* (as they call it) it will be *ebbing* water, or *flood* upon the ſhore, three hours before it is ſo in the *offing*, i e. off at Sea: which it may be cannot well be conceived without an under, as well as upper Current. Though theſe home *Experiments*, I ſay, cannot well be denyed, yet I find it little more than *gratis dictum*, or founded at moſt upon conjecture or ſlender authority, that it is ſo in the *Sound*, or *ſtraights* of *Gibraltar*: But admit it ſhould; I am ſtill at a loſs which way the *under current* ſhould goe that carryes away the water that comes into the *Mediterranean* from the *Euxin* Sea, unleſs carryed away by the ſame *under current* which carryes away that which comes in through the *ſtraights* of *Gibraltar*; and if ſo, the under current muſt be at laſt 3 times bigger than the upper one, makeing allowance for the waters that increaſe this vaſt ſtore from the *Rivers* of *Europe*, *Aſia*, & *Africa*, that flow into the *Mediterranean* on this ſide the *Helleſpont*: which if ever well made out I ſhall reſt ſatisfyed as to that particular. Yet ſtill this will not account either for ſuch *Lakes* as *ebb* and *flow* with the *Sea*; or that have *ſalt water* in them and *ſea-fiſh*, yet have no ſuperterraneous communication with the *Sea*; that receive great numbers of freſh water rivers into them yet never overflow, ſuch as the *Caſpian* Sea, *Lacus Aſphaltites*, *Haguygabon*, &c. mentiond §§. 69 and 70 of this Chapter.

74. Hitherto from *Philoſophy* and profane *Hiſtory* having made it probable at leaſt that few *Springs* come from *rains*, *Snows*, &c, and manifeſt that many of them (if not all that are conſiderable doe come form the *Sea* through *ſubterraneous paſſages*: Let us next add (what ſhould put all out of doubt with a *Chriſtian Reader*) the conſtant uniform concurrence, of *Holy Writ*; where they are expreſsly called *the Springs of the Sea*[i], and *the fountains of the Deep*[k]; the whole *Circulation* whereof is more fully declared by the *Wiſe Man* in *Eccleſiaſtes*, where He ſays, *that all Rivers runinto the Sea, yet the Sea is not full, unto the place from whence the Rivers come, thither they return again*[l]. Which *Text*, if well conſidered, ſeems to include a *Problem*, and in the latter part, the *Wiſe-Man's* anſwer; The *Queſtion* in the firſt part being, How it comes to paſs, that all the *Rivers* runing into the *Sea*, yet the *Sea* is not full? To which He plainly anſwers; *unto the place from whence the Rivers come, thither they return again*, i. e. that there is a perpetual motion or circulation of the waters through the *Globe* of the *Earth*, and that the *Sea* ſends as much forth again for the ſupply of the *Rivers* as it received from them; which manifeſtly ſhews us why the *Sea* is not full. I know that Mr *Ray* would

[i] Job. 38. v. 16. Amoſ. 9. v. 6. [k] Gen. 8. v. 2. [l] Eccles. 1. v. 7.

have

have this performed by the *ſuperior Circulation* through the *Clouds*, and not by *ſubterraneous paſſages*, that is, that the *Sun* exhales water out of the *Sea*, which being poured down again from the clouds upon the *Earth* from part thereof falling upon and ſoaking into the higher grounds, He would have the *Springs* and *Rivers* ariſe; and that this way, whence the *Rivers* come, they ſhould return again [m].

75. But I can by no means allow this for a *ſolution*, ſince it manifeſtly infringes the whole *Analogy* of the *Scriptures*; for beſide that we find there iſſued *a River from the Earth*, as the *Vulgar Latin* and *Septuagint* tranſlate it (which in all probability was theſame that went out of *Eden*) *before God had cauſed it to rain upon the Earth* [n], the *Deep* is plainly ſaid *to ſend forth Her Rivers* [o]; And *God* Himſelf expreſsly diſtinguiſhes between the *waters* of the *Deep* (whence Spring the *fountains*) and the *waters* of the *Clouds*, intimating their different *origines* and *motions*: For when *God* deſtroyed the world by the *flood*, *the ſame day were all the fountains of the great Deep broken up, and the Windows of Heaven were opened* [p], moſt manifeſtly hinting that the *waters* of the *former* were to move as violently *upwards*; as the *latter*, *downwards*: Again, when this dreadfull *Judgement* was overpaſt, *the fountains of the deep, and the Windows of heaven are ſaid to have been ſtopped* [q]: *God* is ſaid alſo *to eſtabliſh the Clouds above, and to ſtrengthen the fountains of the Deep* [r]: Likewiſe *Jacob* bleſſed *Joſeph with the bleſſings of heaven above* (the *dews* [s]) *and with the bleſſings of the deep that lyeth under* [t], So that unleſs one could conceive a thing to *operat* before it had *being*, or could reconcile *Contrarieties*, and make things the ſame which *God himſelf* has diſtinguiſh't, by ſo many repeated and ſo different expreſſions, the abovementioned *ſolution* can be no way admitted.

76. Agreeable to which *Dictates* of the *Word* of *God*, and particularly that of *Solomon* (which ſays *Ricciolus* we are not to eſteem as a *ſaying* of the *vulgar*, but an *Aphoriſme* of the *divine wiſdom* [u]) we find the *Sentiments* of moſt of the *Ancients*; who generally thought the *Springs* and *Rivers* to have their *Origine* from an *Abyſs* or great *Deep*, which *Homer* calls

---------- Μέγα σθένος Ὠκεανοῖο
ἐξ οὗπερ πάντες ποταμοὶ, καὶ πᾶσα θάλασσα,
Καὶ πᾶσαι κρῆναι, καὶ φρείατα μακρὰ νάουσιν [w].

the great *power* of the *Ocean*, out of which flow all the *Rivers*, all

[m] *Joh. Ray his Obſervations Topographical* &c. p. 300. [n] Gen. 2. v. 5. 6. [o] Ezekiel 31. v. 4. [p] Gen. 7. v. 11. [q] Gen. 8. v. 2. [r] Prov. 8. v. 28. [s] Deut. 33. v. 13. [t] Gen. 49. v. 25. [u] *Joh. Bapt. Ricciol. Almageſti novi* Lib. 9. cap. 13. [w] *Homeri iliad.* Pag. 9. v. 195.

Seas, all *Fountains*, and all *deep wells*; which he at another place, ſome other of the *Poets*, *Plato*, &c. call alſo *Barathrum* and *Tartarus*: Only by theſe, 'tis plain they did not ſo much intend the *Sea*, as a vaſt collection of waters within the bowells of the *Earth*, derived from the *Sea* through a prodigious *gulf*; εἰς τοῦτο τὸ χάσμα συῤῥέουσί τε πάντες οἱ ποταμοὶ, καὶ ἐκ τούτου πάλιν πάντες ἐκῥέουσι, into which *hiatus* or *gulf*, ſays *Plato*, all the *Rivers* flow, and from which again they diſperſe themſelves abroad [x]. And 'tis plain from *Ariſtotle* and *Seneca* that many more of the *Ancients* were of this opinion [y], and ſo were moſt of the *Authors* (with little difference) mention'd § 40 of this *Chapter*: Which too being agreeable to *holy Writ*, the *Deep* and the *Sea* being diſtinguiſh't in *Job*, *the Deep ſaith it is not in me, and the Sea ſaith it is not in me* [z]; we cannot but ſubſcribe, and allow it for authentic; and be induced to think, that by the word *deep*, the *Scripture* does moſt times intend not ſo much the *Sea*, as ſuch a vaſt proviſion of waters in the *Caverns* of the *Earth*; and that where the *fountains* are called *the Springs of the Sea*, the mediation of the *Deep* ought to be underſtood (as perhaps it alſo ſhould through the whole *State* of the *Queſtion*) & when *Solomon* ſays, *unto the place whence the Rivers come, thither they return again*; there ought to be underſtood the mediation of the *Sea*.

77. Which being the *Summe* of what I have to ſay for this part of the *Queſtion*, let us next ſee whether the *objections* brought againſt it §§ 38 and 39 of this *Chapter*, may not more eaſily be ſolved, than the *arguments* for it perhaps are like to be: The firſt whereof, that great *Inundations* &c [a], I judg to be ſo very inconſiderable, that it ſeems rather to make for, what it deſignes to overthrow, than any thing againſt it: For if the great *rains*, and the meltings of *ſnow* and *Ice*, goe away in *floods*; thence ſhould I rather argue that theſe could not be the *cauſes* of *Springs*, there being ſo little left for the Supply of them; an allowance for *exhalations*, and the nouriſhment of *plants*, being alſo to be deducted. And to the *ſecond* I anſwer that for ſuch *Springs* that quite fail in *ſummer* we have already granted them § 37 to depend wholy on *rains*; though with the Reverend and learned Dr. *Stillingfleet* I might juſtly perhaps have rather imputed this failure to the *Suns* exhaling by his continual heat, thoſe moiſt *vapors* in the *Earth* that ſhould conſtantly have ſupplyed theſe *Springs*, than meerly to the want of *rain* [b]; And for ſuch as conſiderably abate of their

[x] *Plato in Phæd.* p. 112. *Edit. Hen. Steph.* An. 1578. [y] *Ariſtot. Meteorolog.* Lib. 1. cap. 13. & 14. *L. An. Senecæ Nat. Quæſt.* Lib. 3. cap. 4. 5. [z] *Job* Chap. 28. v. 14. [a] See § 38. *of this Chapter.* [b] *Stillingfleeti Origin. Sacr.* Lib. 3. cap. 4.

waters,

waters, though we cannot allow them intirely to be ſupplyed from *rains*, yet we are not ſo ſanguine neither (nor does it prejudice our cauſe) but that we may readily yield that moſt *Springs* (if not all) may receive *augmentation*, though not their eſſence from them.

78. To the *third*, which infers that *Springs* muſt needs be from *rains*, becauſe they are never found on the *tops* of *Hills*, which otherwiſe ſometimes they might be, at leaſt where the *Hills* exceed not the ſurface of the *Sea* in height; it may plainly be replyed, that we are well aſſured from very good hands, that there are *Springs* on the *tops* of high *Mountains*, ſuch as the fountain head of the River *Marſyas* which ſays *Q. Curtius* riſes *e ſummo montis cacumine*, out of the very ſummit of the *Mountain*[c]: and *Cardan* acquaints us that there is another does the like in the *Iſle* of *Bonicca* near *Hiſpaniola*[d]: He tells us alſo that from the very top of the higheſt rock of the *Iſle* of *May* in the *Fyrth* of *Forth* upon the coaſt of *Fife* in *Scotland*, there Springs a fountain of freſh water, though the whole *rock* or *Iſle* be ſcarce two miles about[e], which might alſo well have been conſidered § 63 of this *Chapter*: As might too what I find amongſt the remarks of the Honorable Mr. *Boyle*, who traverſing the maritim Country of *Warterford* in the Kingdom of *Ireland*, ſaw a *Mountain* from whoſe higher parts there ran precipitouſly a pretty broad *River*, that within but two or three years, before firſt broke forth without any manifeſt cauſe from a great *Bog* that had been immemorially at the *top* of that *Mountain*, and hath ſupplyed the *Country* with a *River* ever ſince; which had it proceeded from *rains* or *Snows*, I ſuppoſe would have been there long before. Beſide we are aſſured by *Scaliger* that in a field near his owne houſe, there iſſues forth a *ſpring* from the *top* of a *Hill*, than which there is no ground higher any where near: who alſo further adds that there is a *Lake* with liveing *ſprings* in it, in a plain upon the top of mount *Cinis*, amongſt the *Cottian Alps* between *Savoy* and *Piedmont*, than which very high and ſpacious *Level* there is no place higher[f], to afford any ſuch ſupply as is ſuggeſted in the *Objection*.

79. Which too partly might have paſt for a tolerable *anſwer* to the *fourth Objection*, which concludes in like manner (as the other from *Hills*) that all *ſprings* muſt needs be from *rains*, becauſe there is none riſe in *plains*: But the ingenious Dr. *Boat* expreſsly informes us, that in *Ireland* which is a place very full of *ſprings*, they frequently riſe in flat and champain *Countries*; that ſort of

[c] *Q. Curtii Rufi Hiſtoriarum* Lib. 3. *in initio.* [d] *Hieron. Cardani de ſubtilitate* Lib. 2. p. 92. *edit. Baſil.* An. 1582. [e] *Hieron. Cardani de rerum Varietate* Lib. 1. cap. 6. *in initio.* [f] *Jul. Scaligeri de Subtilitate* Lib. 15. *Exercit.* 46.

fountains, which forcibly burſt out of a *rock*, or the foot of a *Mountain*, being rare to be found in that *Kingdom*[g]: Nor are *ſprings* riſeing in *plains* only found there, but in many other *Countries*, ſome of the greateſt *Rivers* in the *World* having their *Origine* in *plains*; thus *Pyramus* in *Cappadocea*, which though *Strabo* calls πλωτὸς *navigabile flumen*, yet he ſays it breaks out ἐκ μέσου τοῦ πεδίου[h] in the middle of a *plain field*: And *Agricola* tells us that the great River *Tanais* riſes *in campeſtri planicie Moſcoviæ* in the champain fields of *Muſcovy*[i]: To which add *Danubius* the greateſt *River* in *Europe*, whoſe fountain head ſays *Cluverius* (notwitſtanding it is perennial and ſo capacious that it takes up 26 foot in length and 18 in bredth is *in humo plana atque aperta* in plain ground in the village of *Eſchingen* or *Donaſching*; or as *Jornandes* will have it, *in arvis Alemanicis*, and not as *Herodotus*, *Tacitus*, *Pliny*, and *Marcellinus* ſay, at the foot of a *hill* or great *Mountain*[k]. To the fift it may be anſwered, that the reaſon why we find few *ſprings* in ſtiff *Clays*, is not ſo much that *rains* cannot ſinke into them, as that the *ſprings* cannot force themſelves from below up through them, as the ingenious Mr. *Young* found it at *Lipari*[l], and as was further hinted in the bed of *Chalk* § 64 of this *Chapter*. And the *Sixt* ſeems to have been ſufficiently enervated *Ibidem*, in all the *Paragraphes* from the 56. to the 60th.

80. Though it may be further added that the *rains*, *Snows*, &c. are ſo far from ſupplying all the water that runs into the ſea by the *Rivers*, that bateing what is ſpent in the nouriſhment of *Plants*; moſt, if not all the reſt, is exhaled again into *vapors* for the ſupply of *rains* and *dews*; whence it is, that dry and barren *Countries* have but litle *rain*, and that the draining of *bogs* and *fens*, and cuting downe *woods* and *groves* (which cauſe the *Air* to ſtagnat, and ſo ingender moiſture, and preſerve it by their ſhade) will ſo alter the very temper of the *Heavens*, that the *Country* which before was cold and wet, ſhall become warme and temperatly dry. Thus *Pliny* tells us of old, that the *Country* about *Philippi*, being made dry by *ſluces*, and artificial *trenches*, the whole diſpoſition of the *Air* and *weather* was thereby altered, and the very *habit* of the *heavens* above their heads changed[m]. And thus we are credibly informed that in our forreigne *Plantations* by deſtroying the *woods*, and laying all open to the *ſun*, the *rains* are much abated, there being not half the *rains* now in *Barbadoes*, that there were heretofore; and that the *rains* ſtill diminiſh in *Jamaica*, as they extend

[g] G. *Boate's Nat. Hiſt. of Ireland* chap. 7. §. 1. [h] *Strabonis rerum Geograph.* Lib. 12. p. 536, *edit. Paris.* An. 1620. [i] *Geo. Agricolæ de natura Eorum quæ effluunt ex terra* Lib. 3. *in initio.* [k] *Phil. Cluverii Vindelicia & Noric.* chap. 6. [l] *Lecturæ Cutlerianæ de potentia Reſtitut.* p. 34. [m] *C. Plinii ſecundi Nat. Hiſt.* Lib. 17. cap. 4.

their

their *Plantations*[n]; As I am told they have alſo in *Ireland*, and in *Lincolnſhire* and *Cambridgſhire* in *England*, upon draining the *bogs* and *fens* in thoſe *Countries*.

81. And laſtly to the *Seventh* and its ſeveral branches, viz. that thoſe who would have the *fountains* ſupplyed from the *Sea*, have not ſatisfyed the world, *firſt* that there are ſuch *Caverns* or *ſubterraneous paſſages* that come from it; I think I may ſafely ſay they have had full ſatisfaction from §§. 67.68.69.70.71 and 72 above written. And to the *ſecond*, that if ſuch *Caverns* ſhould be allowed, it does not yet appear, how water ſhould aſcend to the *tops* of *Mountains*, &c. I anſwer firſt, that in caſe it ſhould be admitted, that the *Sea*, can have no ſuch elevated parts, as to be the cauſe of any *Spring* on the *top* of a *Mountain*, yet this hinders not but it may be of thoſe in the *Valleys* (theſe being as much below the ſurface of the ſea, as the *Mountains* are above it) which is as much as we contend for, it having been readily granted §. 37 that the *Springs* on, or near the *tops* of *hills*, if weak and weeping, may proceed from *rains*: But indeed if ſuch as thoſe mention'd §. 77 (eſpecially that from the *rock* in the *Iſle* of *May*, which cannot well be ſuppoſed to come from *rains*) be intended in the *argument*, the caſe is more difficult, and requires *ſecondly* a more ſtrict and direct anſwer; for if all *water* compoſe it ſelf to a *Level*, above which it will never aſcend in a *Tube* or other paſſage, how it ſhould thus be conveyed to the *tops* of *Mountains*, is a *Queſtion* indeed worthy of *Solution*: which yet we find not ſo inſuperable, but that it may be ſaid,

82. Firſt, that notwithſtanding it is true, that *water* continuing in an equal ſtate, and veſſel, aſcends not naturally above its owne *Level*; yet that when there is an unequal weight between the water deſcending and the water aſconding, as there is between the *ſalt water* of the *ſea*, and the *freſh* of *fountains*; the former deſcending in *large paſſages*, and the latter aſcending in *tapering Tubes*, diminiſhing into *capillaries*; the *ſea water* being preſſt too with a vaſt weight of *Air* which is always incumbent upon its ſpacious ſuperficies: I ſee no reaſon (theſe circumſtances being well weighed) but that ſuch water may well aſcend above its owne *Level*, ſo far as to iſſue forth from the *top* of the higheſt *Mountain*; juſt as the *Quickſilver* aſcends in the *Tube* of a *Barometer* by the preſſure of the *Air* upon the ſtagnant poole of *Mercury* below. To which 2. let me add the great aſſiſtance afforded toward the performance of this work, by the conſtant *heat* in the lower *Regions* of the *Earth*, which warming the ſtreames as they run along, there are continually riſing ſome *vapors*, or little particles of water which

[n] *Philoſoph. Tranſact.* Numb. 27. p. 491.

nimbly

nimbly pass through the *pores* of the *Earth*, till they come toward its *superficies* in the *Caverns* of the *Mountains*, which being inviroined with *cold*, these *vapors* are there condensed again into *perfect water* as in the head of a *Cucurbit* or *Still*; and as *Des Cartes* and Dr. *Stillingfleet* learnedly observe, being now more *gross*, cannot descend again through the same *pores*, through which they ascended when *vapors* [o], and therefore seek out some wider passages near the surface of the *Earth* or *Mountains*, through which descending obliquely, and uniting in the way with all other *vapors* arrested in like manner, they grow at length into a considerable body of *waters*, which finding a fit vent at the foot of a *Mountain* or any *declivity*, they become at length a *Spring*, that is perpetually maintained, by the like as perpetual *Evaporations* and *Condensations*.

83. Now that there are such *hypogeal heats* or *Estuaries* in the third *Region* of the *Earth*, which that most acute *Philosopher* the Honorable *Robert Boyle* upon good grounds places *lowest*, and to commence at about 80 or 100 *fathom* deep, is evident from the testimony of *Morinus* and other ingenious persons cited by the same noble *Author*; who visiting the deep *Hungarian mines*, at the orifice of the *Grooues* found them temperatly warme, much as the *Air* above, but descending lower they felt it considerably *cold*, till they came to 80 or 100 *fathom*; which being past, they came by degrees to warmer *regions*, which still increased in *heat* as they went *deeper* and *deeper* [p]: in some of these *Mines* Dr. *Browne* also acquaints us that He found it so *hot* at *bottom*, that to refresh Himself he was constrained to goe with his brest naked, though he had only Linnen cloathes on, for which reason too the *Workmen*, he says, were also forced to work naked [q]: But I have met with such *heats* at a far lesser depth as may be seen in the *Nat. Hist.* of *Oxfordshire* [r]; whence I am induced to beleive that there is a great latitude to be allowed in this matter, and that the *heats* lye *deeper* or *nearer* the *surface*, according as the *principles* doe, from whence they proceed; which whether from *fermentations* or *subterraneous fires*, being indifferent to my purpose, I shall not *dispute*; wanting *time* indeed, as perhaps the *Reader* may *patience*, to attend the decision of so nice a point.

84. Moreover 3. there may be subjoyned another *social cause* that may contribute not a little to the elevating *water* above its owne *Level*, I meane the vast *quantities* of *Sand*, *Gravel* &c. through which the *Sea water* is percolated in the *Earth*, in which 'tis plain

[o] *Ren. Des Cartes Princip. Philosph.* Part. 4. §. 64. & *Stillingfleet Origin. Sacr.* Lib. 3. cap. 4. [p] *Mr. Boyles tract of the temperature of Subterraneal regions. cap.* [q] *Dr. Brownes account of his Travels into Hungary, &c.* p. 90. [r] *Nat. Hist. of Oxfordshire* chap. 6. §. 61.

from

from the *Experiment* of *Magnanus*, that water will aſcend above its own *Level* [s]: wherein the *Reader* may ſatisfye Himſelf, if he take a glaſs *tube* of an inch, or ½ inch bore or thereabout, and fill it with *ſand*, being firſt ſtopt at bottom with a *clout*, and ſet it in a *baſon* of *water*; He ſhall preſently ſee the *water* gradually aſcend in the *Sand*, at leaſt a foot higher than its *ſuperficies* in the *Baſon*, the grains of *Sand* wetting one another by *approximation*, as the *threds* in a *filtre*; which I have found true upon frequent *Experiment* of it: But then indeed, as the forecited *French Author* objects, though I made an orifice 4 or 5 inches above the *water* in the *Tube*, and affixt a ſlender *pipe* to it, into which I alſo put a *filtre* already wet, yet I could not by theſe, or any other means I could think of, procure the *water* to make any ſignes of droping forth [t]; though I doe not doubt but it would, could the *Experiment* be ſo ordered as that the *water* might aſcend in *vapor*, and be condenſed again above, ſo as not to be capable of returning, as the proceſs was ſhewn above, to be performed in the *Earth*. Not to mention that the *water* may aſcend of it ſelf in the *ductus's* of the *Earth* when they become *capillary* without further help, as we ſee it naturally does in *capillarie Tubes* *; or like the *ſap* in *trees*, and deſcend again, ſo as to flow forth, as in the wounded *Birch*.

85. But 4. waveing all that ha's hitherto been ſaid, if the *Seas* at ſome places be higher than at others; or at ſome places and times, be violently throwne up as high as any *Mountains* that have *Springs* upon them, there will be no need of makeing uſe of any of the former allegations, of the unequal *weight* of the *Sea water*, preſſure of the *Air*, *hypogeal heats* &c. for either of theſe being proved, the *Axiom* in *Hydroſtaticks* [*that water aſcends not above its owne Level*] needs not at all be infringed, to convey water to the *top* of the higheſt *Mountain*, for if one *Sea* be not high enough to performe the feat, another may: Now that *Seas* at ſome places are higher than at others, ſeems not only probable from what was alleged § 20. of this *Chapter* to prove our *Weſtern*, higher than our *Eaſtern Sea*; but from the judgment of many ancient *Mathematicians* and *Philoſophers*, ſuch as the *Grecian Architects*, who affirming, as *Eratoſthenes* relates it in *Strabo*, the *Corinthian Sinus*, to be higher than that [the *Saronic*] at *Cenchreæ*, diverted *Demetrius Poliorcetes* from cutting the *Corinthian Iſthmus* [u]; Which very conſideration alſo, that the *Ionian* was higher than the *Ægean Sea*, cauſed *Julius Cæſar*, *C. Caligula*, and *Nero*, who

[s] *De L' Origine des Fountains premier partie* p. 125. [t] *Ibidem ſeconde partie* p. 154, 155. * *De quibus vide Joh. Chriſtopheri Sturmii Collegium Experiment. Tentamine* 8. [u] *Strabonis rerum Geograph.* lib. 1. pag. 54. edit. Paris. An. 1620.

all attempted the ſame thing, to deſiſt in like manner, leaſt the City *Ægina* ſhould thereby have been drowned [w].

86. It was upon this account too that *Seſoſtres* King of *Egypt*, *Darius* the *Perſian*, *Ptolomæus*; and ſince them, the *Sultans* of *Egypt*, and the *Emperors* of *Turky*, each in their reſpective raignes, proceeded not in their cuting the *Arabian Iſthmus* between the *red Sea*, and the *Mediterranean*, or *Nile*; for that the *red Sea* being found by the *Egyptian Mathematicians*, to be three cubits higher than the *land* of *Egypt*, they feared an irrecoverable inundation over that *Country* [x]. Nor have the *Ancients* alone been of this opinion; for *Cabæus* informes us that 'tis evident even to ſight, that the *Liguſtic* Sea or *Mar di Genova*, is much higher than the *Adriatic*, to any body that ſtands on the mount *la Bocchetta*, where it is plain it ſeems, that the *Liguſtic Sea* is level with a place called *Serraval*, whence there continues a deſcent to *Tortona*, thence lower to *Pavia*, and thence yet lower to *Venice* [y]. and *Ricciolus* tells us that the *Fathers* of the *Society* of *Jeſus* informed Him, that ſtanding upon the *Mountains* of the *Iſthmus* of *Panama*, where they could ſee both the *Northern* and *Southern Seas* of *America*; it was plain to them that the former near *Nombre de Dios*, was much higher than the latter near *Panama* [z].

87. The reaſon of all which is, that the *Bottoms* of ſome *Seas* are higher than others, which is ſo far from a new *obſervation*, that it was taken notice of as long ago as *Ariſtotle*, who not only names ſeveral *Seas* that are higher than one another (though I think Him out in his *Method*) but expreſsly aſſerts the moſt *waters* to come from the *North*, becauſe the *Earth* is higheſt there of any part of the *World* [a]: For which very reaſon too, both *Fromondus* and *Van Helmont* owne the *Tides* to run ſwifter from *North* to *South*, than any other way, *etiam adverſo vento*, though the *Wind* be againſt them [b]; Nay ſo peremptory is *Van Helmont* in this point, that though He allowes the *Corpus Terraqueum* to be round from *Eaſt* to *Weſt*, yet He ſcruples not upon this account to deny it to be ſo from *North* to *South*, and proves it rather to be *Parabolical*, from the *Obſervations* of ſuch as have ſayled far *North*, who affirmed to Him, that they ſaw the *Sun* there a whole *Month* ſooner than they ſhould have done, had this united body of *Earth* and *Sea* been perfectly round; which ſo much exceeding the effect of a *Crepuſculum*, He ſeems juſtly to aſcribe it to the exceſſive height of the *Northern Regions* and *Seas* above the more *Southern*, inſtancing particularly in the

[w] *Joh. Bapt. Riccioli Geograph. & Hydrograph. Reformatæ* Lib. 1. cap. 16. [x] *Ibidem*, & *C. Plinii ſecundi Nat. Hiſt.* Lib. 6. cap. 29. [y] *Cabæi Meteor.* Lib. 1. text. 9. q. 9. & text. 73. [z] *Joh. Bapt. Riccioli Geog. & Hydrog. reform.* Lib 1. cap. 16. [a] *Ariſtot. Meteorolog.* Lib. 2. cap. 1. [b] *Libert. Fromondi Meteorologia.* Lib. 5. cap. 1. Art. 5. [c] *Joh. Bapt. Van Helmont Ortus Medicinæ Cap. Aqua.* pag. 115. 115. *edit. Venetiis An.* 1651.

Mediterra-

Mediterranean, and *Countries* about it, which He thinks to be the *loweſt* of any [c]: And perhaps indeed they may be ſo, the *Northern Seas* flowing into the *Atlantic*, and the *Atlantic* into the *Mediterranean*, as the *Volga* (if the *Caſpian* have any Subterraneous paſſage into the *Euxine Sea*,) *Danubius*, *Tanais*, and *Boriſthenes* alſo doe, which runing through vaſt *tracts* of *Land* from the *North*, and deſcending all the way, moſt evidently demonſtrate it a much lower place than the *Northern Countries* are, whoſe *Seas* too being ſo high, may well furniſh the more *Southern* higheſt *Mountains* with *Springs* enough.

88. But admitting the *ſublunary world* to be *Globular*, yet if its *Center* of *Gravity* be never ſo little removed from the *Center* of *Magnitude*, by reaſon of the *lightneſs* of the water on one ſide the *Globe*, in compariſon of the much more *weight* of the *Earth* on the other; the *water* on that ſide will ſo much exceed the higheſt *Mountain* on the other, in altitude; i. e. will be ſo much further diſtant from the *center* of *gravity* than the *top* of any *mountain* can be, that I cannot ſee what ſhould hinder but the *water* ſhould aſcend naturally (waveing all other helps) to the *top* of the moſt elevated *Mountain* in the *World*, its *level* being higher; i. e. more remote from the *Center* of *gravity*, than the *top* of any *Mountain*. Now if we ſeriouſly conſider the *terraqueous globe*, we ſhall indeed find ſuch an unequal diſtribution of *Sea* and *land*, that the *Center* of its *gravity* muſt needs be removed from the *Center* of *Magnitude* at leaſt as much (though I might ſay more) as between the ſurface of *Mare del Zur* or the *Pacific Sea*, and the bottom of it; that *ſea*, if we begin on the coaſt of *China* at the 150 degree of *Longitude* and number to the 260°, containing very near one third part of the *Globe*, and the *Earth* the other two: ſo that admitting that there are but as many *depths* or *inequalities* at the bottom of this *ſea*, as there are *Mountains* on the *Earth* oppoſite to it, it may eaſily be apprehended how it may ſend *water* to the *tops* of any of thoſe *Mountains*.

89. Nor can it be objected that if the *Center* of *gravity* were thus removed from the *center* of *Magnitude*, the *Pacific ſea* (to bring them together by an equal libration) muſt neceſſarily overflow a great part of *Aſia* and *America*: for the *ſhoars* of all *ſeas* being dry ſand, beach, or rocks, and ſomwhat higher than the *rim* or *ſelvege*, though lower than the *gibbous bulk* of its *waters* further off in the *Main*, (not to uſe herein the aid of the Omnipotent power of *God*, who ha's *ſet a bound to the waters that they turne not again to cover*

[c] *Joh. Bapt. Van Helmont Ortus Medicinæ Cap. Aqua.* pag. 34. 35. *edit. Venetiis* An. 1651.

the Earth[d], and has ſaid to the *ſea, hither ſhalt thou come and no further*[e]) not I ſay to make uſe of this *ſupernatural reſtraint*, the *ſhoars* being dry, and a little elevated above the *rim* of the *ſea*, may contain it (without violence offerd to *nature*) notwithſtanding its protuberance *in alto mari*, juſt as *water* or other *liquor* will be contained within the dry *brims* of a *glaſs*, though it be as much elevated above it, or perhaps in proportion more, than the *ſea* need be above its *ſhoars*, to ſend *water* to the *top* of the higheſt *Mountains*.

90. And if the *Sea* conſidered in its *quiet ſtate* (as it has been hitherto) may doe this, much more ſure may it, in its *diſturb'd condition*; when the *waters of it are gather'd together in a heap*[f], *when God works his wonders in the deep, when He raiſeth the ſtormy wind, which lifts up the waves thereof, ſo that they mount up to Heaven, and goe downe again to the depths*[g]; as the *profane* as well as *inſpired Poet*, has alſo expreſt it, in the midſt of his troubles

Me miſerum quanti montes volvuntur aquarum!
Jamjam tacturos ſidera ſumma putes.
Quantæ diducto ſubſidunt æquore valles!
Jamjam tacturas tartara nigra putes[h].

in which condition, it is very frequently in the gulfe of *Lione*, and the gulf *de las Yeguas* between *Spain* and the *Canaries*, in the *Bay* of *Biſcay*, the *Japan* and *China* Seas, and near the *cape* of *Good Hope*[i], which alone might ſupply *water* enough for the *Springs* on the *tops* of *Mountains*, they being but few, at leaſt till there happen new *ſtormes*, though poſſibly they may have them interchangeably, which ſolves the difficulty better. But the *Sea* indeed is never at reſt, haveing always its *flux* and *reflux*; and at ſome places boyling up, by the aſcent of hot ſubterraneous *exhalations*, like a ſeething pot: by one, more, or all which ways together, or elſe by ſome other yet unthought of (uſeing more of them, or leſs, according to the condition of the place) the *Sea* conveys its waters to the *tops* of *Mountains*.

91. For that *Salt water* ſome way or other does aſcend in the *Earth* above its owne *Level*, I am perfectly convinced from ſome *wells* that I am aſſured we have in *England* near the *ſea* ſide, which being ſituat on ſo elevated ground that their *bottoms* lye not near ſo deep as the ſurface of the *ſea*, yet by ſome means or other are conſtantly ſupplyed with *brackiſh* water; a thing that could hardly be, unleſs the *ſalt water* did aſcend above its *Level*: Which being matter of *fact* is not to be diſputed, though we cannot infal-

[d] *Pſal.* 104. v. 9. [e] *Job.* 38. v. 11. [f] *Pſal.* 33. v. 7. [g] *Pſal.* 107. v. 24, 25, 26. [h] *Pub. Ovidii Naſonis Triſtium* Lib. 1. Eleg. 2. [i] *Joh. Bapt. Riccioli Geograph. & Hydrograph. reformat.* Lib. 10. cap. 1.

libly

libly aſſigne the *Method* whereby it is done. I ſay is not to be diſputed, at leaſt not by ſuch *Adverſaries*, as allow that the *ſea water* exhaled by the *ſun*, is really ſeparated not only from its *fixt* Salt, but *volatile* too, before it deſcends again in *rain*, meerly becauſe matter of *fact*, though they can no more tell how *nature* performs it in the *Air*, than we can, how ſhe does it in the *Earth*. Which may paſs for an anſwer to the *third* branch of the Seventh *Argument*, which equally concludes againſt our *Adverſaries*, as *us*; for if it be done in the *Air* by a *celeſtial* diſtillation alone, though it cannot by an *artificial*; much more ſhould I think it might, by a *ſubterraneous percolation* and evaporation too; it being abſurd to think, ſays *Ariſtotle*, and the learned *Lydiat*, that the ſame thing ſhould not as well be performed under ground as above it, by the ſame *principles* [the power of *heat* [k]] whereof if they can give us no tolerable account, there is little reaſon they ſhould expect it from us; though 'tis eaſy to imagin how it muſt needs be done, if one reflect on the many thouſands of percolations and evaporations that water may receive in its paſſage through a maſs of Earth of four or five, or perhaps of ſix or ſeven thouſand miles thick.

92. And to the *fourth* branch of the ſame *Argument*, which requires ſatisfaction, why the *paſſages* through which theſe *percolations* have been made from the beginning of the *world*, are not long ſince ſtopt up? it may briefly be anſwered that in all probability they are ſo far from being ſtopt, that 'tis next to certainty that they dayly grow wider; it being found by ſad experience amongſt *Seamen*, who when they want *freſh water*, ſometimes percolate *ſalt water* through a *Tub* of *Sand* or *earth*, that though at firſt the water comes tolerably *freſh*, yet upon repeated tranſcolations, the *paſſages* grow ſo *enlarged*, that at laſt it comes forth again but little alter'd: Whence we cannot but conclude theſe *paſſages* in the *Sea* (where the great *Voragines* are) muſt needs by this time be ſo very large, that they are altogether unlikely to be any way ſtopt: Yet granting they ſhould; there is no *ſalt*, and but little *Earth* of ſo cloſe a texture, but it will admit of percolation: Some few *Clays* indeed there are, and ſome other *Earths* perhaps there may be, whoſe parts are ſo *faſt* and *united* that nothing will paſs through them, nor is there any neceſſity it ſhould, for few of theſe *indraughts* here and there interſperſt, will (and I ſuppoſe doe) ſerve for this purpoſe; whence it is that *Springs*, as the learned Dr. *Stillingfleet* very well obſerves, are not indifferently every where to be found, but only in the paticular *channels* wherein they are included like the *blood* in an *Animal*, which if prick't in ſome parts ſends forth *blood* immediatly, but if the *inciſion* happen between the *ſinews*, or in the

[k] *Tho. Lydiati Diſquiſit. Phyſiolog. de origine fontium* Cap. 2. *in initio.*

more *callous parts*, the *blood* either comes not at all, or not till it be made very deep[1].

93. Thus if you *dig* in ſome places incredibly *deep*, you ſhall hardly meet with *water*, whereas at another, though but a *coyts* caſt diſtant, you ſhall find it plentifully, and near the *day* too; whereof I have met with ſeveral conſiderable *inſtances* in *this* and other *Countries*; particularly that at *Barlaſton* near *New caſtle* under *Lyme* is very remarkable, where in the *South Chancell* of the *Church* belonging to the worthy Mr. *John Bagnal*, there riſes a *Spring* whenever they have occaſion to dig a *grave* (notwithſtanding it is always ſhelter'd from *rains*) that quickly fills it with water; whereas if they dig in any other part of the *Church* or *Churchyard* round about it, they find the *Earth* as dry as in moſt other *places*; whereof the ſame Mr. *Bagnal* gave me a very cogent though uncomfortable *Teſtimony* from his owne *Well* hard by, which though 22 yards deep, had ſcarce any water in it in *winter*, much leſs in *Summer*. Thus at *Tetnall* alſo in *Staffordſhire* upon the *Hill* above the *Church*, the *Springs* riſe within 3 yards of the ſurface, whereas the *Wells* near the *Church* 20 yards *below*, are all betwixt 20 and 30 yards deep; ſo that the Springs on the *Hill*, lye at leaſt 40 yards higher than thoſe in the *Vale*, though they are not diſtant above 200 yards. So at *Longdon* as well within the *Church* as *Churchyard*, though upon higher ground, the *Springs* lye ſo *near*, that many times the *Coffins* are cover'd with *water*, when they put them in their *Graves*; whereas at the *Parſonage* Houſe that ſtands on a much lower ground, and but juſt without the *Churchyard* wall, the well is 30 yards deep at leaſt, and ſometimes wants *water*. And in the Church and Churchyard of St. Michael at *Lichfield*, is found the ſame thing, though the Church ſtand on the very ſummit of a Hill (the ground falling every way from it) and that no ſmall one neither.

94. But the moſt eminent *Inſtance* of this kind, that ever I met with in all my *Travells*, is at *Blounts Court* in the *Pariſh* of *Rotherfield Pypard* in the *County* of *Oxon*: where though they dug a *Well* on one ſide of the *Houſe* (as I received the account from that great *Encourager* of all ingenious deſignes, the Worſhipfull Tho. *Stonor* of *Stonor* Eſq; *Proprietor* of the Place) above 60 yards deep, yet could procure no *water*, it remaining a dry *well* to this day, 48 yards deep, 12 yards and upwards being ſince fill'd up with *Timber* and other *Rubbiſh* thrown into it; whereupon attempting another but on the other ſide the Houſe, 43 yards diſtant, upon higher ground, they found ſo plentifull a *ſpring* at 15 foot deep, that it ſometimes ſtands (as the forecited worthy *Gent.*

[1] *Stillingfleeti Origin. Sacr.* Lib. 3. cap. 4.

lately

lately ſent me word) 12 foot deep in water, though ſituat in a high, faſt, & ſtony *Country*. Nor is the *water* of *ſprings* only conveyed in particular *Channels*, but as the *blood* in the *veins* of *Animals* alſo *aſcends* in them, whereof we have a very remarkable *inſtance* at *Tixall* in this *County*, where the *Spring* near the *Church*, which ſerves the *Towne* whith *water*, has been ſometimes exſiccated, (as I was informed by the learned and obſerving Gent. *Walter Chetwynd* of *Ingeſtre* Eſq;) when the right Honorable *Walter* Lord *Aſton* has had occaſion to cleanſe ſome of the *ditches* in his *grounds* below, betwixt the *River* and the *Towne*, the *water* being thereby intercepted in the way, which could by no means be, unleſs the *water* did *aſcend* thence, in ſuch *ductus's* or *channels* up to the *Towne*.

95. Laſtly to the *fift*, which requires of us, how it comes to paſs that ſince we allow that the whole *maſs* of *Sea water* may perhaps have *annually* paſt through the *body* of the *Earth*, that the *Sea* is not long ſince become *freſh*? it is obvious to reply, that upon the many *percolations* of the *Sea water* through the *ſands* and other *Earths* in the bottom of the *Sea*, the *ſalt* and groſſer parts of it muſt needs in great meaſure be left immediatly there; by *which*, together with the many and great *rocks* of *natural Salt*, that are here and there *latent* in the *Sea*, as well as *land*, and perpetually waſht by its *fluxes* and *refluxes*; all the *waters* poured into the *Sea* by the *Rivers*, are ſated again with *Salt* as faſt as they arrive: by the immenſe quantities of *Salt*, I ſay, left in the *bottom* of the *Sea*, which cannot be diſſolved by the *Sea water*, becauſe ſufficiently *impregnated* with it already, but may by the *freſhes*. Now that there is indeed ſuch a vaſt quantity of *Salt* more in the *bottom* of the *Sea* than near the *ſurface*, is more than probable, from the much greater *coldneſs* of the *Sea water* at the *bottom* (unleſs in ſome few places where there are *hot Springs* or *ſubterreſtrial Exhalations*) than near the *top*, as is univerſally verifyed by all *Urinators* that have had occaſion to deſcend thither to recover *goods* loſt by *Shipwrack*, or to fiſh for *pearl* or *Corall*; the *cold* ſtill increaſing with the *depth* [m]; which I take as certainly to proceed from the greater quantity of *Salt*, as that by the help of it, every *Ruſtic* can ſhew the *Experiment*, of freezing a *pot* by the *fire*: Nor is this only found true in the lower region of the *Sea*, but alſo in our inland *Salt-works*, where the water is alſo coldeſt at the *bottom* of the *pits*, inſomuch that when the *Briners* goe to cleanſe them, they cannot abide in them above *half* an *hour*, though for all that time, they drink nothing but *ſtrong waters* [n].

96. Beſide the great quantities of *Salt* left at the bottom of the *Sea* by means of *percolations*, it is as certain that there are alſo

[m] *Mr. Boyle of the temperature of Submarine regions* Chap. 3. and 4. [n] *Philoſ. Tranſact. numb.* 59. *and in Mr. Collins's diſcourſe of Salt and fiſhery* p. 9.

Vaſt

vaſt *rocks* of *natural Salt* which contribute not a little to the *Saltneſs* of the *Sea*, and will perpetually doe ſo, whatever quantities of *freſhes* may be poured into it to the end of the *World*: Thus the Rivers *Ochus*, and *Oxus*, as *Pliny* tells us, are made *Salt*, by great pieces or fragments of *rock Salt* that fall into them from the adjoyning *mountains* [o]: and all our inland *brines* no queſtion are thus made by the paſſage of *waters* through inexhauſtible *rocks* of *mineral Salt*, which doubtleſs are as frequent in the *Sea*, as *Land*; whereof the Iſle *Ormus* is ſo eminent an *Example* thar I need add no more, it being nothing elſe (as *Du Hamel* informes us) but a *rock* of *white Salt* [p], a few ſuch inſtances being ſufficient for the purpoſe, notwithſtanding the boundleſs extent of the *Sea*, eſpecially if we conſider that the *Sea water* is not not ſo ſalt as ſome imagin; 5 or 6 gallons of it not yelding ſo much Salt, as one of *Cheſhire* brine. And thus I have as breifly as ſo difficult a point would bear, given the grounds of my preſent *opinion* concerning the *Origine* of *Springs*, which as I have not aſſumed meerly out of a *ſpirit* of *contradiction* to other worthy *Authors*, but upon mature *deliberation*; So I ſhall always be as ready, when the *reaſons* I have brought be ſolidly *anſwer'd*, and more *cogent* ones urged to the contrary, *retract* it again: For I would have the *Reader* take notice that I write nothing *dogmatically* in any part of this *Work*; but *cum animo revocandi* whenever I ſhall be better inſtructed, either by my *owne*, or the more accurate *Obſervations* of *Others*.

97. Hitherto having treated of the *waters* of this *County*, only as they have ſome way or other related to the matters of *health*, or *origine* of *Springs*: let us next conſider the *Rivers* of this *County*, and then the *fountains*, that have any thing *otherwiſe* unuſuall attending them. Amongſt the former whereof, the Rivers *Manyfold*, and *Hans* alias *Hamps* (two branches of the *Dove*) have this remarkable in them, that they are not only (like the *Nile* in *Æthiopia*, *Tigris* in *Armenia* [q], *Ganges* in *India* [r], the *Rhine* above *Bon* in *Germany*, the *Danow* in the upper *Pannonia*, the *Po* in *Italy*, *Anas* in *Spain* [s], and divers others mention'd by *Seneca* [t], *Agricola*, and *Pictorius* [u]) ſwallowed up, and run under ground for about 2 miles, but have alſo theſe other *peculiarities*: 1. That each of them have, not one, but many *Inlets*; the firſt that receives the *Manyfold* being near *Wetton* Mill, and the firſt that ſwallows *Hamps* a little below the water Houſes, on the *River* ſide betwixt *Waterfall* and *Cauldon*; both of them, when they ſwell ſo high that the firſt will not receive them, having divers others below at no great diſ-

[o] *C. Plinii 2di, Nat. Hiſt.* Lib. 31. cap. 7. [p] *Joh. Bapt. Du Hamel Phys. part.* 2. *Tract.* 2. cap. 4. [q] *Geo. Agricolæ de Ort. & Cauſis ſubterraneorum* Lib. 1. [r] *See the map of Ganges in the Engliſh Atlas of Eaſt India.* [s] *Geo. Agricolæ de natura Eorum quæ effluunt ex terra.* Lib. 3. [t] *L. An. Senecæ Nat. Quæſt.* Lib. 3. cap. 26. [u] *Geo. Pictorius de fluminibus miraculoſis.*

tances

tances that uſually doe it all the *Summer*. 2. That though for the moſt part they run under ground all the *Summer*, yet they doe not ſo in *Winter*; for when their *waters* are ſo high, that all the *Inlets* will not ſuffice to *ſwallow* them, then they have *Channels* (which lye dry all the *Summer*) wherein like other *Rivers* they are conveyed above ground meeting near *Beeſton Torr*, about ½ a Mile North of *Throwley*, and ſo runing on to *Ilam*, joyning the *Dove* a little below, North of *Blore* Park. And 3. though in *Summer* they fall into the *ground* at 2 miles diſtance, yet as above in *Winter*, ſo below in *Summer*, they joyne again ſomewhere under the great *Hills* through which they paſs; for we find but one *exit* for them both, which is a little below Mr. *Ports* Houſe near *Ilam* Church; unleſs we ſhall rather ſay, that either, or both of them, never come forth again at all, and that the *Spring* at *Ilam* may have no dependance on them; which may be eaſily tryed, were *Feathers* thrown into the *water* at the *Indraught* of one, and *Chaff* (or ſome other agreeable materialls) at the other: But having no opportunity of making the *Experiment* my ſelf, I recommend it to the ingenious *Charles Cotton* Eſq; and the worthy *Mr. Port*, next neighbours to them, who joyntly may try it with little trouble.

98. Beſide, there is a *Rivulet* comeing from Weſt of *Broughton* Chappel, and runing by *Fair-oak*, that two meddows below the houſes, falls into the *ground* within *Blore* Park, belonging to the right Reverend the Lord *Biſhop* of *Lichfield*, which but two Meddows beyond, riſes again under a flat ſtone before it comes to *Blore Pipe*: This 'tis true is but inconſiderable, it being but a ſmall *Rindle*, and runing *underground* but a little way, and not very deep; yet the greateſt *flood* (as I was told) never cauſing it to run above ground, as *Hamps* and *Manyfold* doe, I thought it worth mentioning. To which let me add ſome other ſuch *waters*, which though not conſtant, yet in all *Landfloods* run violently from the *Hills*, and are received below into rocky *ſubterraneous* paſſages, whereof there are two under *Cauldon Low*, but whither they convey the *water* no man knows; and there is another ſuch *Indraught* at the foot of *Ribden* that alſo ſwallows the *Land floods*, which 'tis believed come out again at *Criftage*, but not certain; however it be, the *water* that comes from *Criftage*, certainly falls in under a *rock* at the foot of *Reeden*, and what becomes of it after, no man knowes: of which no more, but that *Ribden*, *Reeden* &c. under which theſe *Cryptæ* lye, are Hills between *Ramſor* and *Pontons* in the *Dale*. Nor have I more to add concerning *Rivers* or *Rivulets* but that the *Manyfold* is fuller of *windeings* (whence doubtleſs it has its name) than *Mæander* it ſelf, if its turnings are no where thicker than about *Palatſha*, whereof the learned and ingenious

Sr. *Geo. Wheler* ha's given us a draught[w]; and that there are two branches of the *Trent* and *Dane*, that though they run quite *contrary* ways yet have their *Origine* from the ſame *Spring* in *New poole* belonging to the right worſhipfull Sr. *John Bowyer* Baronet, one of the moſt thearfull *Encouragers* of this *work*, it emptying it ſelf when full at both ends, and ſupplying in part both thoſe *Rivers*. Which brings me next

99. To the *Springs* that have any thing *peculiar* belonging to them, whereof there is one at *Park-hall* in the pariſh of *Caverſwall*, belonging to the Worſhipfull and moſt obligeing *Gent. William Parker* Eſq; which not only ſends ſo full and uninterrupted a *ſtream*, that it drives a *Mill* within leſs than a bows ſhoot, but alſo makes ſuch a *noiſe* in its *Exit*, that it may be heard at ſome diſtance without any difficulty; theſe *Springs* the *Germans* call *Bolderbourns*, whereof becauſe I have given an account already in the *Hiſt. of Oxfordſhire*[x] with the reaſon of the noiſe, I forbear it here. And proceed to another Spring of a more unuſual kind, which iſſeing very plentifully from under a rock in the ground of Mr. *Tho. Wood* between *over* and *nether Tene*, on the Weſt ſide of the *River*, and called the *Well* in the *Wall*, produces all the year round, except in *July* and *Auguſt* (as I was aſſured by the *Proprietor* of it) ſmall *bones* of different ſorts and ſizes, moſt of them like the *bones* (as the people will have it) of *young Sparrows* or very *young Chicken*, ſome of them like *pinneon* bones, others like *thigh* bones near two inches long, but of theſe but few; moſt of them being but an inch, or inch and halfe long; ſome few indeed there are like *rib* bones, but theſe alſo very rare: they break like *bone*, being all of them (except thoſe like *ribs*) *hollow*, and ſeeming to have had *marrow* in them; and are ſometimes ſo plentifull (about the fall of the leaf) that as *Mr. Wood* ſeriouſly told me, He had often ſeen near halfa peck of them at a time.

100. Mr. *Camden* in his *Britannia* tells us of juſt ſuch another *Well* near *Richards Caſtle* in the *County* of *Hereford*, which is always full, ſays He, of litle *fiſhes bones*; or as ſome rather think, of ſmall *frog bones*, though they be from time to time drawn quite out of it[y], whence it has juſtly merited the name of *Bone-well*, as ours might as well have done, from the multitude of ſuch *bones* moſt times found in it. What bones they ſhould be, whether of frogs or other *Animals* I could not indeed preſently determin, becauſe the *Bones* of the other *parts*, of the *head*, *back* &c. were here wanting, nor could I imagin the reaſon of it, nor what ſhould have become of them; till comeing in *Aug.* An. 1681. to the Worſhipfull *Leveſon*

[w] *Wheler's Voyages* Lib. 3. pag. 186. *and* 268. [x] *Nat. Hiſt. of Oxfordſh.* Chap. 2. §. 21.
[y] *Mr Camdens Britannia in Herefordſhire.*

Gower's

Gower's at *Trentham* Eſq I found ſeveral *Frogs* in the *Fountain* in the *Garden* lying dead at the bottom of the *Baſon*, and the fleſhy parts of moſt of them ſo conſumed that there was nothing left but the *Skeletons* of them; the *Cartilaginious* parts of the *head* &c. in ſome of them yet remaining, but in others quite conſumed; which comparing with the *bones*, I had from *Tene*, I not only found them to be *frogs* bones, but alſo quickly apprehended the whole *proceſs* of *Nature* in the manage of the *buſineſs*, viz. that *Frogs* in *July* and *Aug.* being in a declining condition, doe creep into ſuch *Caverns* of *rocks*, as whence this *Spring* comes, and are there kill'd by the exceſſive *coldneſs* of the *water*; and not only their *fleſhy* but *griſtley* parts too, there conſumed as ſoon at leaſt as the *ligaments* that hold the *leg* and *rib* bones together, which are the only *parts* ſolid enough to reſiſt the *diſſolving power* of the *water*: Whence it is that we meet only with *theſe* at the mouth of the *Spring*, and no *others*, brought out by the violence of the *water*, and in the moſt plentifull manner about the *fall* of the *leaf*, quickly after the *death* and *diſſolution* of theſe *Animals*; which being taken away, there come forth gradually *fewer* every *Month* all the *year* after, the whole *ſtock* being uſually ſpent about 2 *Months* before the return of the *year*, which is the occaſion that there are none, or very few, to be found there in the *Months* of *July* and *Auguſt*.

101. Another ſort of *Springs* I have met with in this *County*, that have this yet more ſurprizing *Quality* with them; that though they are all *cold*, yet never will *freez* in the hardeſt weather; ſuch is the *Spring* that feeds the *Millpool* at *Overholm* near *Leek*, and the *Spring* which ſerves the *Mill* at *Tittenſor*, whence it is that the *Mills* of both thoſe places, never fail of goeing in the *ſevereſt froſts*: There are *Springs* alſo about *Hynts* that doe not *freez*, nor will the ſtanding *pooles* that have theſe *Springs* in them: Thus *Clayers pool* in the Corner of the *Park* at *Enfield* never *freezes* in the hardeſt winter, being fed by a *Spring* (comeing out of a ſpout) called *Shadwell*, under which though cold (as I was ſeriouſly inform'd by a very worthy perſon) if you ſet a veſſel of water *frozen*, it will certainly *thaw* it. Of this ſort both *Cardan* and *Varenius* inform us, there is not only a *River* but a great *Lake* too in *Scotland*, that have this ſtrange *quality*. *In Scotia Lacus eſt & fluvius Neſſa, qui calidus quidem non eſt, nunquam tamen frigore congelatur*[z]; and the *waters* of the *Chalybeat Spring* I mention in my *Hiſt:* of *Oxfordſhire* that did not *freez* in the hard winter An. 1676 (when all the *Rivers* were *frozen* up) but continued *open* and *ſmoking* all the time, was as *cold* notwithſtanding as any

[z] *Bern. Varenii Geograph. Gen.* Lib. 1. cap. 17. prop. 7.

water whatever. Now what these *waters* should have in them, that should thus prevent *freezing* οὐδεὶς κακὸς εἴσεται τοῦτο, none but the industrious shall ever find. *Cardan* I know attributes the not *freezing* of the *River* and *Lake Nessa*, to the great abundance of *bitumen* (which He says is *hotter* than *salt*) found in those *waters*; which if true, perhaps indeed may solve the difficulty in that *instance*, for *Experience* teaches us that no *oleagenous* substances will *easily* freez, and some of them *never*[a]:

102. But I doe not remember I must confess that any of the *Staffordshire* or *Oxfordshire waters* seemed to carry with them any signe of a *Bitumen*, or any other *oily* substance: Much rather therefore should I think them accompanied with some fine insensible *fumes* of *Spirit* of *Niter* or other *Salt*, prepared by a more subtile *Chymistry* in the bowells of the *Earth*, that might doe this *feat*; for we find that the *Spirits* of *Niter* and *Salt* will neither of them *freez*[b]; and that their *fumes* are not hot[c]. Or else that their *freezing* is prevented by some unknown *fermentation* (made by some certain *salts*) which may produce *coldness*, as others doe *heat*. For that there are *cold fermentations* as well as *hot*, is evident from a *mixture* of the Honorable *Robert Boyle's*, that emitted *steams* plentifully enough; of whose being rather of a *cold* than *hot* nature, He says there was this (though he might have said more than) *probability*, that the *mixture* whence they ascended, even whilst its component ingredients were briskly acting on one another, was not only sensibly, but considerably *cold*. Which too has been made most evident by my worthy Friend Dr. *Fred. Slare*, by mixing a *volatile Salt* of *human blood*, and Spirit of *Verdigrease*; which though they make so high an *ebullition*, that they take up much more room than before, and will not be contain'd in shallow vessells, yet produce a *cold* sensible to the *touch*, and most conspicuous on the *weather glass*[d]. And as these will not *freez* by reason of a *cold fermentation* there may be in them, so there are others that will not upon account of a *hot* one; whence it is that our *Bathes* are always open, for that 'tis most probable they are all heated by fermentations, I think is sufficiently evinced by *Monsieur de Rochas* and the ingenious *du Hamel*[e]: But of *these* there are none here very considerable; a little *Spring* there is indeed near *Beresford* house (which though dry in the *Summer*) in the *winter* time flowes forth briskly, is *tepid*, and in the Extremity of *frost* and *Snow* smoaks like a *Pot*, upon which account I suppose 'tis, they call it *Warm-wall*. And I was told of another at *Hynts* by the Worshipfull *Matthew*

[a] *Hieron. Cardani de rerum Varietate*. Lib. 1. cap. 7. [b] *Mr. Boyle's Hist. of Cold*, Tit. 3. [c] *Mr. Boyle's Tract of the temperature of Subterraneal Regions* chap. 9. [d] *Philosoph. Transact.* Numb. 150. [e] *Joh. Bapt. Du Hamel de Fossilibus* Lib. 2. cap. 3.

Floyer

TAB. V.

ad pag. 93.

Floyer Esq; that in the *Winter* Seaſon was ſenſibly *Warme*. But theſe being ſo mean and inconſiderable in their kind, that 'tis not worth while to give an account here what *ſalts* or other *Minerals* they be, that moſt likely may cauſe *fermentations* ſufficient to produce ſuch *heats* as we find in ſome *waters*, I therefore paſs them by (though I think I know them pretty well) and proceed next

103. To the *ſalts* that make the *ſalt-ſprings* in divers parts of this *County*, ; Amongſt which the moſt conſiderable are thoſe at the *Brine-pits* in the pariſh of *Weſton*, belonging to the right Honorable *Robert* Lord *Ferrers* Baron of *Chartley* not far diſtant; which ancient *ſeat* of the *Ferrers's* of *Chartley*, his *Lordſhips* great and noble *Anceſtors*, is here juſtly placed *Tab.* 5. as a thankfull remembrance of his *Lordſhips* munificence in promoting this *work*. The *Salt Springs* I ſay that are moſt worthy notice, are thoſe of the *Brine-pits*, made ſo no doubt by a *Mineral Salt* there is, that their *waters* paſs through not long before their *Exit*: Which though not very ſtrong (by reaſon of the *poverty* or *hardneſs* of the *glebe* of *ſalt*, or it's ſomwhat too great a *diſtance* from the *Pits*; ſo that either the water cannot eaſily diſſolve it, or if it doe, its weakened again by the way) yet they make as good *white ſalt* for all uſes perhaps as any is in *England*, though not to ſo great *advantage* indeed as in *Worceſterſhire* and *Cheſhire*; where at *Upwich* and *Middlewich* the brine is ſo ſtrong, that they yield a full *fourth* part of *Salt*; and at *Northwich* and *Namptwich* a *ſixth*[t]; whereas here in *Staffordſhire* it affords but a *ninth*; three *Hogsheads* of brine (without giving it the advantage of the *brine* left in the bottom of a former *Pan*, which is commonly done to make it work the better) ſcarce yielding a *ſtrike* of *ſalt*; but with the help of that *brine* at firſt, and *five times* filling the *Pan*, they uſually procure *nine* ſtrike, i. e. 15 *Hogsheads* of *brine*, makes *nine* ſtrike of *ſalt*, which is 16 hours in evaporating away.

104. The *Pit* from whence they pump this brine, is nine yards deep, and two ſquare, that which comes from the *bottom* being much the ſtronger both in *Saltneſs* and *ſtink*, and of a clearer complexion; that on the *top* having contracted a *yellowiſhneſs*, I ſuppoſe from the *freſhes* that now and then break into it notwithſtanding all care: And the *Pans* wherein they boyle it are *three* in number, made of *forged* Iron, 2 yards $\frac{3}{4}$ long, and, 1 yard $\frac{3}{4}$ broad, and their fuel *Pit-coale*; whereof when the *Pans* are all kept going, they ſpend two *Tuns* to a *drawing*. Dureing the boyling of the brine the *ſalt* is cleared from *ſand*, of which there is ſome (at leaſt will be after it has exhaled for ſome time) in all brines whatever; which is thrown off (the fire acting moſt violently upon

[t] *Philoſoph. Tranſact.* Numb. 53. & 142.

the *middle* of the *Pan*) towards the *Corners* of it, where are placed ſmall ſquare Iron *pans* to receive it, this brine which is evaporating ſo long, yielding ordinarily from the *five fillings*, 10. *Pans* of *Sand*, each of them weighing ten pounds, i. e. in all 100 pounds of *ſand*; which is above one *fourth* of as much *ſand* as *ſalt*, allowing a buſhel of *ſalt* to weigh about 50 pounds. About 3 hours before the *Evaporation* is finiſh't, i. e. before they begin to *draw* (at the fift filling) they *clarify* the brine with the *white* of one *Egg*, which being broken into a *bucket*, and mixt both with *cold*, and ſome of the *hot* brine; by the motion of the hand is brought into a *Lather*, and gently ſprinkled all over the *Pan*; Where upon there preſently appears a *ſcum*, that thickens by degrees as the *impurities* riſe, which thus catch't and detained, I ſuppoſe by the *viſcoſity* of the *white* of the *Egg*; before the brine boiles again, is drawn over the ſide of the *Pan* with a thin oblong ſquare board, fixt to a ſtaff or handle, call'd a *Loot* or *Lute*.

105. After the *ſcum* is taken off, they boile it again *gently* till it begin to *Corne*, which that they may have done according to deſire, if they intend a large *Corne*, and have but little time to let it *corne* by a gentle fire of it ſelf, they put into it about the quantity of a *quart* of the ſtrongeſt and ſtaleſt *Ale* they can get, which *cornes* it greater or ſmaller according to the degree of its *ſtaleneſs*: Or if they would have it finer than it uſually *cornes* of it ſelf, they either draw it with a *quick* fire, which will break the *cornes* ſmall, or ſprinkle the ſurface of the *brine* with fine *wheat floore*, which will make the *ſalt* almoſt as fine as the *ſand* which comes from it; which being both the *fineſt* and *whiteſt* that I ever ſaw any, it gives me reaſon to ſuſpect that it may be of admirable uſe in the makeing of *glaſs*. But (to return again to the matter in hand) during the time of its *corning* they generally *ſlacken* their *fire*, ſupplying the furnace now, rather with the *Sinder* of the *Coale* (which is the ſmaller ſort of it fallen into the *Aſhes* and gotten from them with a *Seive*) than the *coal* it ſelf; this giving the *brine* a gentle heat without flame, and *corning* it better than a forcible fire, which (as I ſaid above) breaks it ſmall: Quickly after it has ſpent ſome time *in corning*, they begin to *draw*, i e, to take the *corned ſalt* from the reſt of the *brine* with their *Loot* or *Lute*, which they put into wicker baskets they call *Barrows*, made in a *Conical* form, and ſet the bottom upwards, each containing a *buſhell*; through theſe being ſet in the *Leach-troughs*, the *ſalt* drains it ſelf dry in 3 hours time, which *draining* they call their *Leach-brine*, and choicely preſerve it here to be boiled again, it being ſtronger brine than any in the *Pit*.

106. This *draught* of the *corned Salt* continues here for about

ſix

ſix houres, and is performed gradually, the *Salt-workers* getting firſt about two *buſhells* or *Barrows* full, then by a gentle fire they corne it again, in half an hour, for the three firſt pair of *Barrows*, but afterwards not under an hour, the *brine* being then thinner, and the *Pan* cooler: They doe not evaporate all the brine out of the *Pan*, but leave ſome in the bottom towards the next *filling*; which together with the addition of the *Leach brine*, heightens the weak liquor, and much advances and facilitates the following *operation*. After the *Barrows* are fully drained, they are removed into the *hot-houſe*, behind the *Saltern* to dry, and are ſet over the brick conveyance of the flame from under the *Pans* to the tunnel of the *Chimney* (which paſſage for that purpoſe is made about ſix or ſeven yards long) where after they have continued for 24 hours, the *Salt* will become ſo dry, that it is fit for carriage, or publick ſale.

107. And this is the tedious proceſs of making of *Salt* in this *County*, which though much more chargeable than in *Worceſterſhire* or *Cheſhire*, where they ſpend not ordinarily above half the *time* or *fire* (nor need they above a quarter) of what the great quantity of *brine* they muſt uſe here, neceſſarily requires for its *evaporation*; yet its being always clarifyed with *Eggs*, and not with *bullocks blood*, as it is moſt commonly in *Cheſhire*, which gives the *Salt* an ill colour and ſavour; and its being better cleared from *Sand* by long *boiling* than either *Cheſhire* or *Worceſterſhire Salts* are; have given it ſuch a reputation amongſt conſidering Men, that the *Undertaker* is incouraged ſtill to proſecute the *work*: Which perhaps might be improved to better advantage, were the *brine* either ripen'd on *Clay* before *boyling*, or *laved* on *hovels* cover'd with *Mats*, made of reeds ſtraw or flaggs, as they ſerve a weak brine they have at *Halle* in *Saxony*; which by being *ventilated* in the *Air*, and *percolated* through the *Mats*, as we are aſſured by the Honorable *Robert Boyle* Eſq;[g] is ſo beneficially exhaled and enrich't by the *Sun*, that were ours ſerved ſo, no doubt a great part of the Expence of *coales* (if not *time*) might be ſaved.

108. Beſide the *ſalt* above mention'd, they have another *ſort*, that during the Operation grows to the bottoms of the *Pans*, which they are forced to ſcale thence with an inſtrument call'd a *picker*: This at the *Seals* at *Droyt-witch* they term *Clod-ſalt*, and is there the ſtrongeſt *ſalt* of all, being uſed to ſalt *Bacon* and *Neats tongues*, which it makes *redder* that any other *ſalt*, and renders the *fat* of Swine *cloſe* and *firm*, though fed with *Maſt*: The *Women* alſo put it in their *Runnet pots*, it makeing (as they ſay) the beſt *Cheeſe*: And upon the *ſcales* of it laid upon the *coales*, the *Brine-men*

[g] *Mr Collins's diſcourſe of Salt and Fiſhery*. p. 7.

and

and others will *broil* their meat [h]. But I could not find it put to any of theſe uſes at this *Staffordſhire* work, nay ſo inſignificant was it here, that they had no *name* for it, nor told they me any thing concerning it, but that once in three weeks or thereabout they *ſcaled* it off their *Pans*; and indeed it ſeems here to deſerve little more, for whatever it may be in *Worceſterſhire*, upon examination I found it here very *weak*, and to conſiſt much more of *ſand* than *ſalt*, which doubtleſs is the cauſe that it will not diſſolve in *freſh water*, though it ha's *ſalt* in it.

109. And thus I had done with the *Brine pits* of this *County*, but that upon a hint given me by the worthy Mr *Collins* in his accurate diſcourſe of *Salt* and *Fiſhery*, *that the great quantities of ſand which we find in all brines, is not in the brine before it is boiled, but produced by a ſort of petrification dureing the Evaporation* [i], I thought not fit to paſs by ſo odd a *Phænomenon*, but to examin whether this (as He ſays all *brines* may) could be ſtrained through a moſt pure fine *Holland* of eight foldings, and yet no ſymptoms of any *ſand* left behind in the *Filtre*: Wherein (being now at a great diſtance my ſelf) I was bold to requeſt the moſt ready aſſiſtance of that carefull *Obſerver* the Learned *Walter Chetwind* of *Ingeſtre* Eſq; who together with his ingenious Chaplin *Mr. Charles King* M. A. and *Student* of *Ch. Ch.* were ſo ſtrict and nice in makeing the *Experiment* that to the eight folds of fine *Holland*, they added as many more of fine *Cambrick*, through which though they ſtrained a whole *bottle* full of *brine*, yet found nothing left in this very cloſe *Colander*, but a little black duſt; which they imputed only to the foulneſs of the *water*, it appearing nothing like *ſand*, either to the *touch*, or in the *Microſcope*.

110. Yet notwithſtanding this *Experiment*, upon further *tryal*, they had good grounds given them ſtrongly to ſuſpect, that the *ſand* muſt needs be in the *brine* before, and not produced in the *boiling*; For having carefully obſerved it with an excellent *Microſcope* before they *ſtrained* it, though they miſt of the *ſand*, yet they found (what they expected not) a great multitude of very *minute Animals* (much ſmaller than thoſe that are in *pepper* water) ſwiming about in it, and withall a very many ſmall tranſparent *plates*, ſome of them a little bigger, and ſome leſs than the *inſects*, and all of them of a rectangular oblong figure: Yet both *theſe* and the *Animalcules* ſo very *ſmall*, that they all paſt through the *Holland* and *Cambrick* though of 16 folds. For viewing the *brine* again after it was *ſtrained*, they found them ſwiming as thick in it then, as before: But at this they did not wonder, becauſe the *pores* of the *Holland* did appear in the *Microſcope* (though it was extremly *fine*) to be

[h] *Ibidem* p. 9. [i] *Ibidem* p. 52.

at

at leaſt twenty times greater than either the *Animalcules* or *plates*; yet theſe they judged to be the component particles both of the *Sand* and *Salt*, which as the brine exhaled in *boiling*, only gather'd together, and made greater cornes of each.

111. Wherein they were confirmed by looking with the *Microſcope* upon ſome of the *ſtrong brine* that dropt from the *Barrows* when the *Salt* was firſt put in, which appearing full of thoſe *oblong particles*, as they looked upon them they could ſenſibly perceive them to *gather together*, and *club* to make greater bodies, till at laſt they appear'd as the water dryed off the *glaſs*, as bigg and not unlike a large *Table-diamond*: Which made them think that the *Sand* too, might probably be produced after the ſame manner, it being very *white*, and ſeeming nothing elſe to them (pardon the expreſſion) but an *inſipid Salt*, whoſe parts are not ſo ſharp and pointed as the other, but rounder and blunter, and conſequently not ſo *pungent* on the *Tongue*. To clear which point I endeavourd to diſſolve ſome of the *ſand* again in *fair water*, to ſee whether I could diſcover any of its *principles*, but without *ſucceſs*, the parts of the *Sand* being ſo inſeparably *fixt* that it would by no means diſſolve; I alſo tryed the *Salt*, which though it *diſſolved*, yet would not render it ſelf again into *plates*: ſo that I can only add, that as it ſeems to be pretty certain that the *Salt* is made out of the *oblong plates*, ſo it is very agreeable to the *Method* of *Nature*, in the production of the gravelly *Caddis-houſes* in the *Nat. Hiſt.* of *Oxfordſhire* [k], that the *Sand* ſhould alſo be produced of thoſe *minute bubbles* (that move like *Animals* in *pepper water*, yet perhaps are nothing ſo) which being of a *glutinous nature* and fit to receive the *Terreſtrieties* of the *brine*, may be eaſily harden'd into *ſand*, by the power of *heat*.

112. Beſide the *Salt Springs* above mention'd there are other weak *brines* that gently riſe out of the *earth* about *Enſon*, *St. Thomas*, and in the pariſh of *Ingeſtre*, in a ground called the *Marſh* belonging to the much Honored *Walter Chetwynd* Eſq; where the *brine* of it ſelf breaks out above ground, and not only frets away the Graſs, but the very earth alſo, ſo that it lies in a plaſh half a foot lower than the turf all about it, juſt as a ſort of *weak brine* is ſaid to do in ſome boggy places at *Nantwich* and *Droytwich* [l]: Now if ſuch *weak brines* ſpontaneouſly iſſuing forth of the *earth*, are indicative (as good reaſon they ſhould) of much *ſtronger*, deeper in the *earth*, as they are at the *Townes* above mention'd: what might one ſuſpect in the *Marſh* at *Ingeſtre*? where the *ſubterraneous brine* is ſo ſtrong, that the *Cattle* ſtanding in it in *Summer* time and throwing it on their *backs* with their *tails*, the *Sun* ſo *candies* it upon them that

[k] *Nat. Hiſt. of Oxfordſhire* Chap. 7. §. 25. [l] *Philoſoph. Tranſact.* Numb. 53 & 142.

they appear as if covered with a *hoar froſt*. In *Penſnet Chaſe* South from *Dudley* about a mile and half there is another *weak brine* belonging to the right Honorable *Edward* Lord *Ward*, of which his *Lordſhip* once attempted to make *Salt*; but the *brine* proving to *weak*, He thought fit to deſiſt, though poſſibly it might have been advanced to profit by the *Art* of *tunnelling* much uſed in *Cheſhire* to keep out the *freſhes*. In *Newbold* grounds about midway between *Burton* and *Braunſton* there are alſo *Salt-Springs*, where one Mr. *Fownes* about 10 years ſince (then owner of the *Lands*) attempted to make *Salt*; but the mixture of the *freſhes* proved ſo univoidable to Him, that his laudable endeavours were alſo fruſtrated.

113 Between *blew-Hills* and *Cluſterbury edg*, about ½ a mile from *Over-Holm* in the pariſh of *Leek*, I met with a *ſtream* comeing out of a *Sough* belonging to the *Coale-Mine* in *blew-Hills*, as *Salt* as any of theſe, tingeing the ſtones and earth all along as it runs of a *ruſty colour*, and the button moulds of the poor people (who employ themſelves here much in making of *buttons*) of a black colour (eſpecially if made of *Oak*) in half an hours time: with the leaſt infuſion of *powder* of *Galls*, it preſently turned as black as *Ink*: all which ſhewed it to be a ſtrong *Vitriolic* water. Yet endeavouring to evaporat ſeverall *Gallons* of it away in a *Iron pot*, I could procure no *Salt*; which beſide the *tincture* it gave the *ſtones*, evidently convinced me that it held ſome quantity of the *mineral* of *Iron*; it being certain *that a Salt water which contains any Metall in it, cannot be ſodden to Salt in a veſſel of the ſame Metall which it ſelf contains, except Vitriol in Copper Veſſels*[m]: Wherefore procuring about the quantity of ſix *wine-quarts*, by the aſſiſtance of the Worſhipfull *Tho. Rudyerd* Eſq; *Proprietor* of the place, to be boyled away in an agreeable *Veſſel*, there remained about ¾ of an *ounce* of a ſtrong *vitriolic ferrugineous* ſalt; though I cannot but think it muſt alſo contain ſomwhat of *Copper*; for after *ſolution*, *filtration*, and *evaporation*, ſo far only as to be ſet to *ſhoot*, it would tinge my *knife*, being put into it, of a *copper colour*, juſt like *Hungarian* or *Cyprian Vitriol*, which our common *Engliſh Vitriol*, though fated with *Iron*, will by no meanes doe.

114. That *Petrifications* ariſe from the *coalition* of minute, though obutſe parts of *ſalt*, having been fully ſhewed already in *Oxfordſhire*, with the ſeveral *Species* and *Methods* nature uſes in the production of them[n]; I ſhall add no more here but that they belong to this *place*: Nor indeed do the *waters* of this *County* that have this quality deſerve any great matter of conſideration, thoſe

[m] *Philoſoph. Tranſact.* Numb. 7. p. 128. [n] *Nat. Hiſt. of Oxfordſhire* chap. 2. *from* §. 23. *to* 31.

in

in *Cumfall woods*, and below the *Iron Mills* on the River *Churnet*, and that in *Penſnet Chaſe* about ½ a mile eaſtward from *Bromley* in the pariſh of *Kingſwinford*, only incruſtating ſticks and the fibers of moſs with a *gravelly* kind of *ſtone*: The beſt of this kind being performed by a *ſulphureous* ſort of *water* (as I believe moſt are) in ſome grounds of the right Honorable *Robert* Lord *Ferrers*, about midway betwixt *Sandon* and *Gayton*, where the branches of the *Moſs* are ſo delicatly petrifyed, that its forme is preſerved even in the *capillary parts*. The beſt I ſay, unleſs the hard ſtone found in *Church-Eyton* Lordſhip, by my hoſpitable Friend Mr. *Walter Jennings*, *Rector* of the place (which pretty well ſhews indeed the *grain* of the *wood*) ſhould be a *petrification*, it being beſide two *inches* thick, and muſt be (if at all) a *petrification per minima*.

115. Having done with the *ſalt*, and *Petrifying* waters; come we next to thoſe of *Medicinal* uſe; that have, are, or may be taken *inwardly*, or applyed *outwardly*, for the prevention or cure of divers *diſtempers*: ſuch was anciently the water of the *Well* of *St. Eraſmus* (to begin with the *ſulphureous oleagenous* waters) in the grounds of the Worſhipful *Walter Chetwynd* Eſq; which was of ſo great eſteem formerly, that there was a *Chappel* built near it, and I think endowed by ſome of that *ancient Family*; where the *offerings* were ſo conſiderable that the *Rector* of *Ingeſtre* (in whoſe pariſh it is) yet pays at this day for the *Diſmes* of them, more than for the *profits* of the whole *pariſh* beſide, notwithſtanding its *Revenew* with all other ſuch *Lands* given to pious uſes, were taken into the *Kings* hands at the *Reformation*, and the *Chappel* be now demoliſhed, and all applications thither long ſince ceaſed. Though I doubt not but the *water* remains as *good* and might be as *beneficial* as ever it was; for notwithſtanding it lyes now wholy neglected, and overgrown with weeds, yet the *water* is ſtill *clear*, and ſo exactly of the colour of *Sack*, that compared with it (in the judgment of ſeveral *Honourable perſons* that were at the tryal) they were *indiſtinguiſhable* to the Eye, which is its only *Characteriſtic* wherein it ſenſibly differs from other *waters*, it having no very eminent either ſmell or taſt: So that what ſhould be the *ingredients* to give it this *colour*, proved hard to be found, without the tryal of many, and thoſe very nice *Experiments*.

116. For having aſſayed it with the infuſion of *powder* of *Galls*, the ſolutions of *Vitriol*, *Tartar*, and *ſublimat*; the Spirits of *Niter*, *Urin*, &c. (as well *alcali's* as *acids*) yet none of them would either *ſtir* it or change its *colour*, but a ſolution of *Saccharum Saturni*, and *Syrup* of *Violets*; whereof the former did precipitat its *yellow colour* to the bottom, leaving the water above, white and limpid; and the latter changed the *amber* to a *graſs-green* colour.

Beſide upon *diſtillation* of about 3 pints of it in a *glaſs body* and *head*, when about a *moyety* of it was come over in clear water, in the *remainder* there plainly appeared to the naked Eye an ineffable number of *blewiſh ſhining films* or *plates* flooting about in it, which were of ſo thin and curious a ſubſtance, that they could not by any means be ſo ſeparated from the *water*, as to remain viſible upon any other body, nor indeed had I then any other means whereby to examin them.

117. But ſince the ingenious contrivance of thoſe ſort of *Microſcopes* whereby we ſee the *Animals* in *pepper water*, and by the help whereof the worthy Mr. *Chetwynd* hath ſo happily diſcovered ſuch *thin plates* in the *brine* of the *Salt-works* not far from this *well*, I am inclined to believe theſe come from *Salt* too, and that the *Minerals* wherewith this *water* is impregnated, are *Salt* and *Sulphur*, notwithſtanding the little taſt or ſmell it has; and the rather becauſe the *brine* that ſpontaneouſly iſſues forth above ground in the *Marſh* aforementioned §. 111. is but a little way from it in the ſame *Gentlemans* Eſtate; and why may there not as well be a *ſulphureous glebe* too? which being fretted away by the inciſive particles of the *Salt*, may be brought away with them in the *waters*, as inviſible as the particles of any *Metall* diſſolved in its proper *Menſtruum*, only imparting the *colour*, as *Gold* does to the water, in the preparation of the *Crocus* or *Tincture* of *Gold*[o]: Which *Salt* and *Sulphur* in all probability do ſo involve one another, that their mutual *embraces* hinder the exertions of each others *vertues*, i. e. the *Sulphur* by its viſcidity, does ſo flatten the *edges*, and ſo ſweeten the *pungency* of the *Salt*; and the *Salt* on the contrary ſo condenſe and lock up the *volatility* of the *Sulphur*, that notwithſtanding the great quantity of *both* in this *water*, yet it ſends forth no very *ſmart*, either ſmell or taſt.

118. Which may alſo be the reaſon that though *Salt* and *Sulphur* be both *Acids*, yet this water ſeems impregnated with an *alcalizat Salt*; the *acrimony* of its *Salt* being ſo cloſe lock't up by the *viſcous particles* of the *Sulphur*, and render'd ſo dull and unactive, that it ſeems to have nothing of the power of an *acid*: Whence it came to paſs that it *lather'd* well with *Soap*, and would not turn *milk*; having not *pungency* enough to inſinuat it ſelf into the *pores* of the *alcalizat Salt* in the *Soap*, nor *aſtringency* ſo to compreſs the pores of the *Milk*, as thereby to cauſe any *precipitation*. Whence alſo it came to paſs, that having put on the *vizor* of a *fixt Alcali*, with *Syrup* of *Violets* it gave a *green tincture*; and its *yellow colour* was precipitated by a ſolution of *Saccarum Saturni*, the *acidity* of the *diſtill'd Vinegar* (uſed in the preparation of that *Salt*)

[o] *N. Lemery's Courſe of Chymiſtry.* chap. 1.

acting

acting upon the *Salt* of this water as an *Alcali*, and ſo opening its parts, as to force it to let go the *ſulphur* it ſo cloſely embraced; and yet no other *acid* (I could think of) would doe it but *this*; whence we may reaſonably conclude that the *edges* of all *acids* are not alike, but ſome better fitted for the opening of one body, and ſome of another.

119. Near *Codſall-wood* there is ſuch another *Sulphur well*, but the *Salt* and *Sulphur* not ſo equally mixt in the *water*, for though the *Sulphur* have ſo ſufficiently rebated the *acidity* of the *Salt*, as to render it wholy as unactive as an *Alcali*, ſo that it *lathers* well with *Soap*, will not turn *milk*, and gives a *green tincture* with *Syrup* of *Violets*; yet the *ſalt* is too weak to lock up or reſtrain the *volatility* of the *Sulphur*; for it always emits a *ſulphureous* ſmell; but in *winter*, and ſometimes againſt *rain*, the odour is ſo ſtrong, that with advantage of the *wind*, one may ſmell it now and then at leaſt 20 yards off: nay ſo *volatile* is it, and ſo little reſtrained, that ſet over the *fire*, it flyes away ſo faſt, that the water quickly looſes its ſmell, I tryed it with *Galls* and *Oke leaves*, with the ſolutions of *ſublimat* and *Tartar*, and with ſeverall *Acids*; but none of them would either throw downe the *Sulphur*, or *change* its *colour*, but *ſpirit* of *Urin*; which turned it of a faint rediſh colour like *Champane wine*: perhaps a ſolution of *Saccarum Saturni* might have made a *precipitation*; had I had any with me, or known the ſecret.

120. The *water* of this *well* is much clearer then that at *Ingeſtre*, and yet is moſt certainly fated with *ſulphureous* particles; for about 40 or 50 years ſince, ſome *perſons* hereabout curious of knowing whence ſuch *waters* ſhould come, both dug and boared the ground near adjoyning, and met with a ſort of *mineral* Earth that craſh't in the boaring (as ſome of them deſcribed it) like *rotten wood*; which being carryed to *London* was found *ſulphureous*, and I ſuppoſe muſt needs be the *native ſulphur*, depauperated of its richeſt particles by the inciſive *atoms* of the *Salt*, and left ſo *ſpungy* that (as ſome of them told me) it would *ſwim* on the *water*. This water was accounted in ancient times (when *Leproſies* were frequent) a ſoveraign *Remedy* for ſuch as were troubled with that foule diſtemper, for whoſe better accommodation, there was a *houſe* built near it, which retains to this day the name of the *Leper-houſe*; and is in uſe at preſent againſt *Scabs* and *Itch*, both in *Man* and *Beaſt*, purging both by *Seige* and *urin*, and not only raking the body within, but moſt effectually driving forth all ill *humors*; It alſo ſometimes *vomits* according to the conſtitution of the *Patient*: They commonly drink about 3 quarts at a time, leſs ſcarce working; except by *vomit*, where it meets with weak ſtomacks. The *Inhabitants* hereabout brew their drink with this *water*, eſpecially

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at that they call the *Brimſtone Alehouſe*; and boyle their meat with it; upon which 'tis obſerved, that none of them are ever troubled either with *Scabs* or *Itch*, or ſuch like *Cuticular* diſeaſes.

121. But the *water* that carrys with it the moſt rectifyed *Sulphur* is that of the *well* in *Willowbridg* Park, it being hardly viſible in the *water* it ſelf, which appears (not like others) of a *yellow*, but a clear *Chryſtalline* colour, only on the ſides of the *glaſſes*, after they have been uſed a while, one may perceive (with good attention) a bright *oilyneſs*, which is ſo *volatile* that upon *diſtillation* it came over before the *water*, as *volatile Spirits* do, and then (being embodyed) was of a *bright yellow*: to which putting a few drops of ſolution of *ſublimat*, it preſently turned of a deep *Sack-colour*, whereby it ſeemed like the other *waters* (the *Salt* being rebated by the viſcoſity of the *Sulphur*) to have ſomewhat of a *Lixiviat Salt* with it; but ſo very weak, that it made this deep *yellow* inſtead of the *Orange tauny* precipitat. Upon which account it was too (that like the other *Sulphur waters*) it *latherd* well with *Soap*, would not turn *milk*, nor would the *crude water* with *Syrup* of *Violets* turn either of the *red* or *green* colour, though we know there is an *acid* in it, that puts on the Nature of an *Alcali*; Nor could I procure the leaſt ſigne of any *Salt*, though I evaporated divers *Gallons* of it away, ſo ſubtile are the *Salt* and *ſulphur*, wherewith this *water* is impregnated.

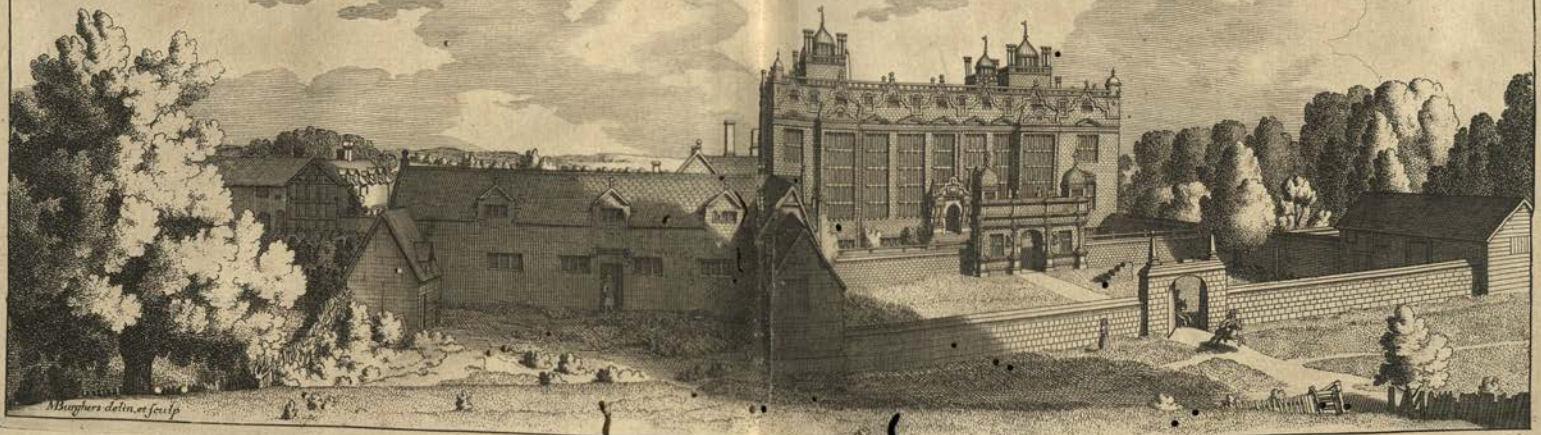
122. The *crude water* indeed would anſwer to *nothing* but the infuſion of ſolution of *ſaccharum Saturni*, which inclined me to think it of the ſame *nature* with the *ſulphur water* of *Ingeſtre*, only impregnated with much finer and more ſubtile *ſteams*; though the effect in *this* was quite different from *that*: for inſtead of precipitating the *ſulphureous* particles, this only turned the whole body of the *water*, firſt of much ſuch a *blew-yellowiſh* colour as is made by the infuſion of the chips or ſhavings of *Nephritic wood* in common water, which after a while faded into a *muddy white*. A *Phænomenon* I muſt confeſs much more unaccountable, than the means whereby it *cures* ſo many *diſeaſes*, which moſt certainly it performes by its *balſamic virtue*, and great *ſubtilty* and *volatility*, eaſily permeating the cloſeſt *texture*, and moſt unacceſſible parts of the *body*, when once heated by the *ſtomack* if taken *inwardly*, or but by the external heat of the *ſkin* if applyed *outwardly* by way of *Bath*; for ſo ſenſible is it of the leaſt *heat* (as I plainly ſaw in *diſtilling* it in a *glaſs body* and *head*) that its *oil* or *ſulphur* came over the *Helm* upon the firſt *heat*, and was all in the *Recipient* before the leaſt drop of *water* appear'd. How extenſive its *ſanative virtue* may be, indeed is hard to determin, but I dare pronounce it proper, wherever the *ſyrup* of *Diaſulphur* of the famous Dr. *Willis* has been ſo

ſucceſſfully

TAB. VI.

ad pag. 103.

To the right Hon.ble
and truly Noble Lord
DUDLY Lord GERARD
of GERARDS Bromley
This 6 Table
Shewing the N. & W. Prospect
of his Lord.ps Magnificent Seat
at BROMLEY with the deepest
Sence of Gratitude is
humbly presented
by R. P. & D.



M. Burghers delin. et sculp.

ſucceſſfully adminiſtered; though if one might take an eſtimat from the many atteſted *Cures* it has done, it comes as near a *Panacea* as any Medicin in the *World* [p].

123. Of which *water* there is ſo great plenty, that I computed no leſs than 60 *ſprings* of it, of a moſt uninterrupted profluence (whereof enough §. 57 of this *Chapter*) all riſeing within the ſpace of 10 yards ſquare, in *Willow-bridg* Park, the *Propriety* of the right Honorable *Digby* Lord *Gerard* of *Gerards Bromley*, a moſt noble *Patron* of this *Work*; whoſe ſtately Seat at *Bromley* within two Miles and ½, the moſt magnificent *Structure* of all this *County*, is here gratefully placed *Tab*: 6. The Property I ſay of theſe *Wells* is in this Noble *Lord*, but at preſent they are held in *Ioynture* by His moſt accompliſht *Mother*, the right Honorable *Jane* Lady *Gerard* Baroneſs *Gerard* of *Gerards Bromley*, by whoſe moſt exquiſite *ſagacity* and *perſpicacious inſight* into the moſt hidden receſſes of *Nature*, the *reſtorative virtues* of theſe waters were firſt *diſcovered*; and at whoſe charitable *expence*, ſeveral of the *Springs* have been incloſed with ſquared ſtone, to preſerve them *pure* and *fit* both for *bathing* and *drinking*; and divers *appartments* built for lodging the *poorer ſort* of diſeaſed impotent people: So that 'tis hard to determin whether the *World* ſtands more indebted to this Honorable *Lady's* Philoſophical, or Theological *virtues*? Whether to Her *knowledg* as firſt *finder*, or Her *Piety*, as *founder* of theſe *Sanative Wells*.

124. I ſay *Sanative Wells*, for (whatever ſome may talk) moſt certain it is that divers ſtrange unaccountable *Cures* have been here performed; and more there might be, were theſe *waters* attended (as ſome *others* are) with a ſkillful *Phyſitian*, to prepare the *body* before hand, direct the uſe of the *waters*, and how to order the *body* after *drinking* or *bathing*: The ſucceſs of uſeing *Medicinal waters* depending much upon *Method*, as my Lord *Bacon* well obſerves it is with ſome other *Medicines*, which unadviſedly adminiſter'd will doe no *Cures*, but orderly applyed, produce geat *ones* [q]. Nor let any Man wonder that there ſhould be any ſuch thing as a *cold Sulphur Bath* (as ſome have done) ſince *Baccius* informes us of divers ſuch in *Italy*, and elſwhere [r]; and *Wernherus* tells us that there are *ſalutares frigidæ* in the Kingdom of *Hungary* [s]; Much leſs that there ſhould be *waters* holding an *oily ſubſtance* and *ſalt* together, as this, and the two other mention'd above are ſaid to doe. Since *Cardan* teaches us that *Sal Terræ*, by which I ſuppoſe he means *mineral ſalt* (ſuch as which perhaps this *water* may waſh in its paſſage) does always partake of *ſulphur*, and holds much *oile* in it, and that in ſome parts of the *Indies* they procure their

[p] *Fons Sanitatis, fron* p. 9. *to* 36. [q] *Nat. Hiſt. Cent.* 1. *Experiment* 60. [r] *Andr. Baccii de Thermis* Lib. 4. cap. 15. [s] *Geo. Wernherus de admirandis Hungariæ aquis* p. 69.

oile

oile from *ſalt*: Whence he concludes too, that it comes to paſs, that the *Olive Tree* flouriſhes beſt near the *ſea ſide*, *ſalſum enim ſolum non leviter pingue eſt*, for that a ſaltiſh ſoil moſt commonly is fat and unctuous [t].

125. With whom alſo agrees our great Maſter *Ariſtotle* λιπαρὸν δ' ἔνεστιν ἐν τῷ ἁλμυρῷ χυμῷ. σημεῖον δὲ ἐκκρίνεται δ' ἔλαιον ἐν τοῖς ἁλέαις, i. e. that *fatneſs* always accompanys a *ſalt* juice, whereof (ſays he) we have this certain ſigne, that in hot weather an *oile* may be ſeparated from it [u]. Again, that the *ſea-water* yields an *oile*, we have alſo the teſtimony of the ſame great *Philoſopher*, ἀπὸ δ' τῶν ἁλῶν ἔλαιον ἐφαιρεῖται. i. e. that *oile* is gotten out of *ſea brine* [w]. Nay ſo frequently are *oiles* found joyned with *ſalts*, that none of them will mix with water *per minima* (as they doe in thoſe above mentioned) without a *fixt ſalt*, as we ſee it does not in *ſoap*, from which as ſoone as ever the *ſalt* is ſequeſter'd, the *oil*, parts from the *water*, and ſwims at top; whereas whil'ſt joyned with it, *Salt* exerciſes ſo abſolute a dominion over *oile*, that it will carry it along with it through all the *parts* of *water*, and therefore is ſaid by the *Philoſopher* ἐν ταῖς ἁλασιν ὑφιζάμενον τὸ ἔλαιον, to be as it were a *ſubject* to it [x]. Which is all can well be ſaid concerning this matter, and I hope the *Reader* expects no more: I ſhall only therefore add that ſuch *oily ſprings* are not ſo very *rare*, but that there are of them, in *Italy*, *Sicily*, *Zante*, *Saxony*, *Schwabenland*, and in divers other places mentioned by *Pliny* [y], *Baccius* [z], *Cardan* [a], and *Varenius* [b], and as *Paulus Venetus* tells us near *Arzinga* in *Armenia*, and as *Athenæus*, at *Niſſa* in the Province of *Megaris* in *Greece*, upon the *Saronic ſinus*.

126. Beſide *theſe*, there are other *ſulphur waters* at many other places in this *County*, though not ſo clear and well concocted as theſe; being generally thick, of a blewiſh colour, and emitting unpleaſant fetid odours, like the *ſulphur well* at *Knarsbrough* in *Yorkſhire*; becauſe proceeding I ſuppoſe rather from a crude *Bitumen*, than a well digeſted *ſulphur*: Such is that at *Tatenhil* on the high way ſide near the *pound*, which in the *ſummer* time (if undiſturbed by *fowle*) has been obſerved to lay downe a *ſediment* almoſt of all ſorts of colours; and might poſſibly have the ſame uſe that other ſtincking *ſpaws* have, were it but kept *clean*. And ſo might that ſtinking water which croſſes *Watlingſtreet* way, not far from *Horſebrook*, and another of this kind betwixt *Willenhall* and *Bently*, could it be kept from a mixture with other *water*. There is another

[t] *Hieron. Cardani de ſubtilitate* Lib. 5. p. 285, 286. *edit. Baſil.* 1582. [u] *Ariſtotelis Problematum Sect.* 3. *quæſt.* 9. [w] *Ibidem, quæſt.* 15. [x] *Ibidem, quæſt.* 12. [y] *Plinii Nat. Hiſt.* Lib. 31. cap. 2. [z] *Baccii de Thermis*, Lib. 5. cap. 15. [a] *Hieron. Cardani de ſubtilitate*, Lib. 2. p. 176. [b] *Bernh. Varenii Geograph. Gen.* Lib. 1. cap. 17. prop. 8.

of

of these in a watery *Lane* not far from *Eccleshall*, and I was told of another near *Hartley green*, beside that, which also petrifyes, between *Sandon* and *Gayton* mentioned §. 113 of this *Chapter*. And there is another at *Butterton* in the parish of *Mathfield* by *How-brook* side, which like the *Baths* of *Banca* in *Hungary* will tinge *silver* of a blackish colour in an hours time[c].

127. There are other *sulphur waters* in this *County* that have a *Vitriol* joyned with them, whereof there is one in a ditch in the Park Meddow under *Broughton* Park pale, and another at *Monmoore* green near *Wolverhampton*, both which will strike with *Galls*, of so deep a *red*, that they become after a while of a *blewish*, and at last almost of a *blackish* colour. And I was shewed another at *Grindlestone* edge about a quarter of a mile Eastward of *Horton* Church, that though it turned *red* both with *Galls* and *Oak-leaves*, yet took *Soap* well enough, whence it plainly appear'd though it were impregnated with an *Acid*, yet its *edges* were so flattened by the *viscosity* of some *sulphur*, that it could not act its part upon *Soap*, as such. Nor indeed met I with any *water* purely *Vitriolic*, but only *one* in *Needwood-Forrest*, about a mile and ½ South easterly from *Hanbury*, which with *Oak-leaves* or powder of *Galls* turned of a faint *red* like *Champane wine*, and seemed to be much like that at *Astrop* in *Northamptonshire*, and *Worton* in *Oxfordshire*, only scarce so strongly impregnated with the *mineral*. I was told (I must confess) of another at *Burslem* near *Newcastle* under *Lyme*, but finding upon tryal that it would not strike with *Galls*, though several that stood by, testifyed they had seen it do it, at another time; yet I choose to pass it by: Or at most can but refer it to that sort of water mentioned in *Oxfordshire*, that in *winter* time will turne with *Galls*, but not in *summer*, whither I also refer the *Reader* (if it be found to doe so) for the reason of the thing[d].

128. Hither also must be referr'd all *milky waters*, as holding somwhat of a *Vitriol* in them, whereof because at large in the *Hist.* of *Oxfordsh.*[e] I shall only mind the *Reader* here that the *water* of the Well at *Hampsted*, the *Seat* of the right Worshipful Sr. *John Wyrley* Knight, whose most cordial furtherance of this *work* must by no means be forgotten, seems to be such an *one*; And so forthwith shall proceed next to the *aluminous waters*, which though they will not strike with *Galls*, yet will coagulate *milk*, will not take *Soap*, and with spirit of *Urin*, turn of a *milky* colour: of these the most remarkable are at *Draycot* in the *Clay*, in the Parish of *Hanbury*, and near *Hore-Cross* Westerly from the *Hall*, by a brook side in a ground call'd *Broadfield*, belonging to the Worshipful *Robert*

[c] *Dr. Brownes travells into Hungary, &c.* p. 87. [d] *Nat. Hist. of Oxfordshire*, Chap. 2. §. 62. [e] *Ibidem* Chap. 2. §. 64.

Howard Eſq; The water of the Well at *Hore-Croſs Hall* the Seat of the ſame moſt obligeing *Gent.* ſeems alſo of this *kind*, for though it will not turn *milk*, or ſtrike with *Galls*, yet it takes not *Soap*, and diſcolours the meat *reddiſh*, that is boyled in it, both ſignes of an *acid*, though it ſeems not ſtrong enough to compreſs the pores of *milk*; whence 'tis plain that the tryal of *waters* with *Soap*, is much more *nice* than with *milk*. The well water of the houſe of Mr. *John Cumberlege* now *Mayor* of *Walſall*, is alſo *aluminous*; and ſo is the fountain head of the *Rivulet* call'd *Stichbrook* between *Lichfield* and *Elmhurſt*; which is ſo apparently *ſuch*, that the very *Alum flat* may be ſeen ſticking in the bank ſide, whence the *water* iſſues.

129. Beſide theſe, there are many other *waters*, not apparently (at leaſt to ſenſe) of any mineral *virtue*, that will not anſwer theſe *Experiments*, yet no doubt carry with them ſome more *ſubtle ſteams* whereby they performe unaccountable *Cures*: ſuch is the water of the well near *Gawton ſtone* in *Knyperſley* Park, which has ſome reputation for cure of the *Kings-evill*, and ſo has the *Spring* called *Salters wall*, near *Newcaſtle* under *Lyme*; And ſuch is the water of the three wells near *Shuſton* houſe, and of St. *Edithes* well, both in the Pariſh of *Church Eyton*, of the two St. *Modwen's* wells, at *Burton* and *Cannal*, and all the *Holy-wells* in the *Country*; which the people ſtill adorn at ſome certain times of the year, with *green boughs* and *flowers*, in grateful memory of the *good* they have formerly done. And amongſt theſe muſt be reckon'd all ſorts of *Eye-waters*, ſuch as that of *Elder well* betwixt *Blymhill* and *Brineton*, and many others of the kind all over the *Country*. And ſo muſt the Spring in a narrow Lane about mid way betwixt *Wolverhampton*, and a houſe called *Sea-wall*, which was anciently of ſuch repute that it ſtill retains the name of the *Spaw*. Which are all the *waters* of note in this *County*; for as for the *Colepit waters*, eſpecially thoſe they call *Canker'd* waters, that kill all the *fiſh* wherever they fall into the *Rivers*, I hold them not *worthy* to have any place in this *Hiſtory*.

CHAP. III.

CHAP. III.

Of the Earths.

1. STaffordſhire, bounded on the *North* with *Cheſhire*, *Eaſt* with *Derbyſhire* and *Leiceſterſhire*, on the *Weſt* with *Shropſhire*, and on the *South* with *Worceſter* and *Warwickſhires*; is divided by the *Trent* into the *North*, and *South*, or rather into the *North-Eaſt* and *South-Weſt* parts; And the *North-Eaſt*, as Mr. *Erdeſwick* and ſome others will have it, ſubdivided again into the *Moorelands*, and *Woodlands*[a]; which latter lying between the *Trent*, *Tene*, and *Dove*, others chooſe rather to call the *middle* part of *Staffordſhire*: Whereof the *Moorelands* are the more *Northerly* mountanous parts, lying between *Trent* and *Dove*, from the *three ſhire heads* Southwardly, to *Draycot* in the *Moores*, yielding *Coal*, *Lead*, *Copper*, *Rance Marble*, and *Mill-ſtones*; and the *Woodlands* the more Southerly level part of that *Country*, from *Draycot*, to *Whichnor*, *Burton*, &c. between the aforeſaid *Rivers*; including *Needwood Forreſt* with all its *Parks*, alſo the *Parks* of *Whichnor*, *Hore-Croſs*, *Bagots*, *Chartley*, *Loxley*, *Birchwood*, and *Paynſley* (which anciently I ſuppoſe were all but as one *Wood* that gave it the *denomination*) producing *Salt*, *black Marble*, and *Alabaſter*, beſide great quantities of very good *Timber*; and both *Moorelands* and *Woodlands*, as goodly *Cattle*, large and fair ſpread, as *Lancaſhire* it ſelf, and ſuch as the *Graſiers* ſay will feed better; the warm *Limeſtone* Hills of the very *Moorelands* producing a ſhort, but a fine ſweet graſs, and large Oxen, though in an open cold *Country*, as *Drayton* in his *Polyolbion*, ſpeaking of the *Moorelands*, alſo plainly teſtifies;

> *She from her chilly ſite, as from her barren feed,*
> *For* body, horn, *and* hair, *as fair a* Beaſt *doth breed*
> *As ſcarcely this great* Iſle *can equal*[b]--------

2. And if amongſt the mountains of the *Moorelands*, much more can they breed and feed *Cattle* too, in the rich *Meddows* that adorn the banks of *Trent*, *Blithe*, *Tene*, *Churnet*, *Hamps* and *Manyfold*, all in this *quarter* of the *Countrey*; and more eſpecially ſtill upon the famous *Dove-bank*, eſteemed by many, the beſt *feeding land* of *England*; which lying upon a *Limeſtone* as Mr. *Camden*

[a] *Mr. Sampſon Erdeſwick's view of Staffordſhire in princip.* [b] *Mich. Drayton's Polyolbion,*

imagins, ſucks ſuch *fertility* from it (though I think with the right Worſhipful and moſt worthy Loyal *Gent.* Sr. *Rowland Okeover* of *Okeover* Knight, it rather proceeds from the *Soil*, eſpecially the *Sheeps dung*, thrown down into the *Meddows* from the *Hills* in great *rains*) that in the very midſt of *winter* the *Meddows* are adorn'd with a pleaſant *verdure*; and if the *River* happen, as it does frequently (holding its courſe all along betwixt great *Hills*, which give it a ſudden riſe) to overflow them in the *ſpring*, it enriches them as the River *Nile* does *Egypt*, and makes them ſo fruitful, that the *Inhabitants* thereabout upon ſuch *occaſions*, uſually chante this joyful *Ditte*,

In April, Doves *flood, is worth a* Kings *good*[c].

whereof the forecited *Michael* Drayton renders this very good reaſon,

——— *Becauſe the dainty graſs*
That grows upon its bank, *all other doth ſurpaſs*[d].

as he ſaith the land of *Needwood* (wherein truly I think he is not miſtaken) doth the *land* of all other *Forreſts* in *England*.

——— Needwood *doth ſurmount*
In excellency of Soil, *by being richly plac't*
'Twixt Trent *and battening* Dove, *and equally embrac't*
By their abounding banks, *participates their ſtore*;
Of Britans Forreſt's *all* (*from the leſs unto the more*)
For fineneſs *of her* Turf *ſurpaſſing*[e] ———

3. From which *Limeſtone hills*, and rich *Paſtures* and *Meddows*, the great *Dairys* are maintained in this part of *Staffordſhire*, that ſupply *Uttoxater Mercat* with ſuch vaſt quantities of good *butter* and *cheeſe*, that the *Cheeſmongers* of *London* have thought it worth their while to ſet up a *Factorage* here, for theſe *Commodities*, which are brought in from *this*, and the neighbouring *County* of *Derby*, in ſo great plenty, that the *Factors* many *Mercat days* (in the ſeaſon) lay out no leſs than *five hundred pounds* a day, in theſe two *commodities* only. The butter they buy by the *Pot*, of a long cylindrical form, made at *Burſlem* in this *County* of a certain *ſize*, ſo as not to weigh above *ſix* pounds at moſt, and yet to contain at leaſt 14. pounds of *butter*, according to an *Act* of *Parliament* made about 14 or 16 years agoe, for regulateing the abuſes of this *trade*, in the

[c] *Camden's Britannia in Staffordſh.* [d] *Mich. Drayton's Polyolbion Song the* 12. [e] *Ibidem.*

make

make of the *Pots*, and falſe packing of the *butter*; which before ſometimes was layed good for a little depth at the *top*, and bad at the *bottom*; and ſometimes ſet in *rolls* only touching at the *top*, and ſtanding hollow below at a great diſtance from the *ſides* of the *pot*: To prevent theſe little country *Moorelandiſh* cheats (than whom no *people* whatever are eſteemed more ſubtile) the *Factors* keep a *Surveyor* all the *ſummer* here, who if he have ground to ſuſpect any of the *pots*, tryes them with an *inſtrument* of *Iron* made like a *Cheeſe-Taſter*, only much larger and longer, called an *Auger* or *Butterboare*, with which he makes proof (thruſting it in *obliquely*) to the *bottom* of the *pot*: ſo that they *weigh* none (which would be an endleſs buſineſs) or very ſeldom; nor do they *bore* it neither, where they know their *Cuſtomer* to be a conſtant fair *dealer*: But their *Cheeſe*, which comes but little, if any thing ſhort of that of *Cheſhire*, they ſell by *weight* as at other places.

4. Nor comes this *Northern* part of *Staffordſhire* much behind the *South* in breeding of *Sheep*, which indeed are but ſmall, have generally black noſes, and their wool but courſe; Nor (now of late years) in the production of *Corn*: for though the *land* imployed for *tillage* for the moſt part indeed be naturally but *mean*, yet where the induſtry of the *Husbandman* ha's any thing ſhewed it ſelf, in *marling*, *limeing*, or mixing *lime* with *Eſs* (as they doe commonly in the *Moorelands*) and ſo laying them together on their *heathy* grounds, as ſhall be ſhewen hereafter in fit place; it produces *Corne* of all ſorts (according to the condition of the ground) plentifully enough. The black mooriſh and gouty grounds of the *Moorelands*, with the beſt *helps* are fit indeed only for *Oates* and *Barley*; but the *arable* lands about *Marchington*, *Draycot* in the *Clay*, *Rolleſton*, *Horninglow*, and ſome other *Townes* about *Needwood*, are of ſo rich a *Clay*; that they produce as good *Hard-corne* (i. e. *Wheat* and *Rye*) *Peas*, *Beanes*, &c. as any in the *South*, though not ſo much; the quantity of *arable* land *there*, being much greater than 'tis in the *North*: the *Sheep* too of the *South*, bear ſomewhat a finer *fleece*, and it produces more and better *Coale*, and *Iron ſtone*; of each of which, hereafter in their proper places.

5. Beſide *Wool*, for the ſupply of the *Cloathing* trade and *Felting*, which are chiefly exerciſed about *Tamworth*, *Burton*, and *Newcaſtle* under *Lyme*; they ſow both *Hemp* and *Flax* all over the *Country* in ſmall *proportions*, whereby they are furniſh't too, in ſome meaſure with *Linnens*: ſo that all things conſidered this ſeems to be *terra ſuis contenta bonis*, a *Land* that can as well ſubſiſt of it ſelf, without the help, either of any domeſtick, or forraigne *Countries*, as any in the *Kingdome*; yielding *Lead*, *Copper*, *Iron*, *Marble*, *Alaba-*

ſter, *Millſtones*, *Coale*, *Salt*, *Cattle* and *Corne* of all ſorts, both *Linnen* and *Woolen*, and what not? and yet *a third part* at leaſt, if not *half* this *County*, muſt be confeſt when all's done, to be *barren heathy*, and *gorſy* grounds, and *woodland*: which yet are ſo far from being any diſparagement to it, that theſe yield ſome of the *chief profits*, as well as *pleaſures* of the *Country*; for though the ſurface be *barren*, yet the *ſubterranean* riches (which are conſiderable here) I mean the *Mines*, are uſually found in ſuch uncultivated places; and of this ſort of *Land* is the *Chaſe* of *Canck-wood*, and moſt of the *Warrens* and *Parks* of the *Nobility* and *Gentry*, whereof before the late unhappy *Civil War*, there were neaſ 50 in this *County* ſtock't with *Deer*, and about 33 or 34 yet remaining; ſo great plenty is there of this kind of *Land*, ſtored not only with *Mines*, but with all ſorts of *Game* both for *Hound* and *Hawk*; ſo happily are the *profits* of the *Gentry* of this *County*, mixt with their *pleaſures*, *Utile dulci*.

6. This heathy, broomy, gorſy, barren ſort of *Soile*, for the moſt part too is a gravelly faſt land, whence it is that in *Canck-wood*, and moſt of their *Parks*, they have ſo pleaſant and ſecure purſuit of their *Game*. Hence 'tis too, that their *high-ways* are ſo univerſally *good*, except in the moſt *Northerly* parts of the *Moore-lands*, where between the *three ſhire heads*, and *Longnor*, the *Hills* and *Boggs* are ſuch, that a *Horſe* can ſcarce paſs between thoſe two places; and indeed many of the *Mountains* of that part of the *Country*, which they call *Roches*, *Clouds*, *Torrs*, *Edges*, *Cops*, *Heads*, &c. are hardly paſſable, ſome of them being of ſo vaſt a height, that in rainy weather I have frequently ſeen the *tops* of them above the *Clouds*; particularly thoſe of *Narrow-dale*, are ſo very lofty, that the *Inhabitants* there for that quarter of the year, wherein the *Sun* is neareſt the *Tropic* of *Capricorn*, never ſee it at all; and at length when it does begin to appear again, as at *Lanthony* in *Monmouth-ſhire*[t], they never ſee it till about *one* by the *clock*, which they call thereabout, the *Narrowdale noon*; uſeing it proverbially when they would expreſs a thing done late at noone. Such *Mountains* as theſe I ſay are hardly paſſable, but theſe are but in a little skirt of the *Country*, the moſt of it being as level as moſt other *Countries* uſually are, and the earth ſo faſt, and the *ways* ſo good (except where now and then they paſs through a *Marle*, and a little about *Wednesbury*, *Sedgley*, and *Dudley*, where they are unceſſantly worn with the carriage of *coale*) that 'tis reported King *James*, ſpeaking jocularly of this *County*, ſhould ſay, *'twas fit only to be cut out into thongs, to make high-ways for the reſt of the Kingdom.*

[t] *Camden's Britannia in Monmouth-ſhire, in initio.*

7. And

7. And thus much in general of the *Lands* of *Stafford-ſhire*: Let us next conſider ſuch particular *Earths*, as have any thing remarkable belonging to them: And firſt, before we begin to break the *turf*; of ſuch *Soils* as have any thing peculiar in their *ſurface*. Amongſt which thoſe which induce upon the *teeth* of *Cattle* a *golden Armature* (though they be pretty common) are not altogether unworthy our conſideration; and ſuch are ſome grounds at *Aſton* near *Stone*, belonging to the Worſhipful *Walter Hevening-ham* Eſq;, who having killed a *Cow* juſt before I came thither of his owne feeding, its *teeth* were found tinged (on the outſide chiefly) with a *golden* or rather a *braſen* colour; which the ingenious Mr. *Liſter* Phyſitian at *York*, imagins might proceed from its feeding on ſome plants, of the *Erica* kind; or rather the *viola lutea grandiflora montana C. B.* which he obſerves to be a great part of the food for their *Cattle* in *May* and *June*, in the mountanous paſtures of *Weſtmorland*, where ſuch *guilded teeth* are every where met with: Whether any ſuch *plants* did grow hereabout, I muſt confeſs I obſerved not; however I rather gueſs that this was ſuperinduced the ſame way, the like *Armature* was, over the *Cornua Ammonis* mentioned in the *Hiſtory* of *Oxford-ſhire*[g], by ſome *urinous* kind of *Salt* in the juice of the graſs, which in ſome *plants* is ſo great, that as *Virgil* acquaint us, it may ſometimes be taſted in the very *milk* of the *Cattle*.

Et Salis occultum referunt in lacte ſaporem[h].

with which *guilding* quality, the *Lago di Rieti* in *Umbria* is ſo ſtrongly impregnated, that the *hoofs* of the *Cattle* that goe into it, are covered with ſuch a ſhineing braſen Armature[i].

8. It muſt alſo be aſcribed to the *Saltneſs* of the *Soile* and *Graſs*, that if any *Horned Cattle* of never ſo deep a *black* or other *colour*, be put to feed in a place called the *Clots* in *Newbold grounds*, in the Pariſh of *Tatenhill*, about a mile *Eaſt* of *Dunſtall*, they will certainly change the *colour* of their *coat* to a *whitiſh-dun* (like a *Daws* head) in a *Summers* runing; and ſo they will if put upon *Tatenhill Common*; or into *Buck-ſtew*, another parcel of *Newbold* grounds: Nor does only the *Graſs*, but the *Hay* of theſe grounds, will alſo turn Cattle to this *whitiſh-dun*, which 'tis ſaid they recover not in two or three years time, though put into grounds that have nothing of this *quality*. As for *Horſes*, they are improved upon theſe *grounds*, at a great rate; only they make them *dappled*, be they of what colour ſoever. All which proceeds no doubt from

[g] *Nat. Hiſt. of Oxfordſh.* Chap. 5. §§. 88, 89. [h] *P. Virgilii Georgic.* Lib. 3. v. 397.
[i] *Geo. Piſtorius de paludibus & ſtagnis.*

the

the *Saltneſs* of the *Soile*, that not only communicates it ſelf to the *graſs* but to all the *waters* thereabout, makeing them brackiſh at leaſt, as was ſhewn above *Chap.* 2. §. 111. *Salt* being of a hot nature, drying up, and ſo reſtraining the *ſuccus nutritius*, that none or very little can be afforded for the *hair*, which (as it does in *old age*) upon defect of *moiſture* turns *white*, juſtly called by my Lord *Bacon*, for this very reaſon, the *penurious colour*[k]. *Pliny*, indeed and *Pictorius*, tell us of divers *Rivers* that will effect the ſame, and yet they doe not ſay that any of them are *Salt*, or ſo much as *brackiſh*, but certainly they muſt be impregnated with ſome ſuch *thing*, which they *lick* from the *Earth* as they paſs along, at leaſt if it be true, that *Melas* and *Cephyſſus*, comeing forth the ſame *Lake*, doe make *Sheep* of quite contrary colours[l].

9. Another *Earth* there is at *Ranton Abbey*, the Seat of the vertuous Madam *Anne Cope*, that is alſo eminent for giving a *colour*, which it does at divers places, but more remarkably under a *Cloſet* that hangs over that corner of the *Cloyſter* which is next the *Steeple*; where I was ſhewn on the ground, a *reddiſh* place, that looked much as if a *calfe* or *ſheep* had been *kill'd* there; upon which the *water* falling whenever it *rains*, is preſently turned of the *colour* of *blood*. This at firſt I thought might proceed from the *nature* of the *ſoile*, or *ſtones*, or *covering* of the *Houſe*; but upon ſtrict examination by diging the *Earth*, I found it a *haſle* mould, very unlikely to give the *water* any ſuch *tincture*; the *ſtones* of a *light gray*, and the *Houſe* cover'd with *Shingles*, both as unlikely as the *Soile*; ſo that at preſent I judg'd it a thing unaccountable: But ſince having more fully conſider'd the matter, I have thought that the *Shingles* being made of *Oak*, may firſt give the *water* a *galliſh* tincture, which falling upon an *Earth* that may poſſibly be *vitriolic*, the *water* may come to turn of this *blood-red* tincture; juſt as *vitriolic* waters doe, upon infuſion of powder of *galls*, which are but the fruit of an *Oak*, and have both of them the ſame aſtringent qualities.

10. It is alſo worth notice that one of *Occamſley pits* (whereof there are about 16 upon the *Watlingſtreet* way, betwixt *Knaves-Caſtle* and *Frog-Homer*) never contains any *water*, or has any ſeen in it, for the leaſt moment of time, after the moſt *ſudden* ſhower, or moſt *durable* rain; though all the neighbouring *pits* at the ſame time are fill'd to the *brim*: of which truth I had an excellent opportunity (to my ſorrow) of makeing an *Experiment*, for after above a *Months* conſtant rain, I found that *one pit*, as dry and hard, as the higheſt gravelly ground in the *ſtreet-way*, the weight both of my

[k] *Nat. Hiſt.* Cent. 1. Num. 93. [l] *C. Plinii ſecundi Nat. Hiſt.* Lib. 2. cap. 103. *vid. etiam Pictorium de fontibus & fluviis miraculoſis.*

ſelfe

ſelfe and Horſe, not makeing any viſible impreſſion in the *bottom* of it, though all the reſt about it, ſtood then *brim-full* of water; and to all appearance lying *higher* i. e. not being ſo *deep* as this, and nothing interceding but a ſpungy heathy *ſoil*; which I muſt confeſs to this day remains unaccountable to me: Unleſs it be ſufficient to ſuſpect, that the *bottom* of the *dry pit* (though hard and ſound) yet may be a very looſe open gravel, through which the *water* may preſently *deſcend*; and the ſides and bottoms of the *reſt*, either a *ſtiff clay*, or ſome other *Earth* at leaſt fit to hold water.

11. That the *Earth* is informed at leaſt with a *vegetative Soule*, was the opinion of the *Pythagoreans*, *Platoniſts*, and *Stoics*: amongſt whom ſays *Plotinus* τὴν μὲν ὃν φυσικὴν ψυχὴν ὅτι ἔχει ἡ γῆ, ἐκ τῶν φυομένων ἐξ αὐτῆς ἄν τις τεκμαίροιτο, i. e. that any one may be convinced that the *earth* has a *vegetative Soule* by thoſe things which are produced by it[m]: Yet ſeeing it ſeems not to be nouriſh't by any aliment *internally* received, or to have any *offſpring* of its own *Species*, *more viventium*, it may well indeed be doubted, whether it be indued with *vegetation* in a ſtrict ſenſe. But that the *Earth* in many places does receive *augmentation*, is very evident from all *old* buildings, whoſe very *windows* (which certainly were never built ſo at firſt) are now *level* with the ground; more eſpecially in great *Townes*, ſuch as *Lichfield* and *New caſtle*, which 'tis very plain ſtand on higher ground now, than they did formerly; other *pavements* being many times found about a yard below *theſe* they now uſe, when they have occaſion to ſink *Wells* or dig *Cellars*: which I ſuppoſe may have come to paſs upon rebuilding theſe *Towns* after ſome general *conflagration*. It is alſo likely, if not certain, that all *valleys* riſe by *atterration* i. e by *Earth* continually brought down from the tops of *mountains* by *rains* and *Snows*, whence all *Mountains* are become lower than they were formerly, and the *Valleys* riſen higher; So that in time all the *Mountains* (except the *rocky*, ſuch as the *Roches* in the *Moorelands*) will by great ſhoots of *rain* be quite waſhed away, and the whole *earth* levelled:

12. Whereof the ingenious Mr. *Ray* gives us a very pertinent confirmation from the ſteeple of *Craich* in the *Peak* of *Derbyſhire*, which in the memory of ſome old men yet liveing, could not have been ſeen from a certain hill lying between *Hopton* & *Werkſworth*, whereas now not only the *ſteeple*, but a great part of the *body* of the *Church* may be ſeen thence, which without doubt comes to paſs by the *deterration* or ſinking of a *hill* between the *Church*, and place of *view*[n]: And I am told of juſt ſuch another example of a hill between *Sibbertoft* and *Haſleby* in *Northampt.* by my worthy Friend Mr. *Maurice Wheeler*, whence yet we may only inferr, that the *parts*

[m] *Plotini Operum Ennead.* 4. Lib. 4. cap. 22. [n] *Mr Rays obſervations Topograph* &c. p. 8.

of the *earth* doe change their Situation, giveing as much increaſe (in proportion) at one place, as it takes away at another, without any augmentation, or diminution in the whole. But we are told by the Learned Sr. *George Makenzie* his Majeſties *Advocat* for the *Kingdom* of *Scotland*, that near his *dwelling houſe*, and at another *farm* of his 20 miles diſtant, He has two *plots* of ground out of which for theſe many years he has dug a *ſtiff, clayiſh, moiſt* earth (uſed there for a *ſoile* to *barley land*) which in two years time, though dug a *foot* deep, will grow up again and fill the *excavated* place[o]: And the *banks* of the *black Meer* in the pariſh of *Norbury* in this *County*, doe yearly grow forward upon the *ſurface* of the water, 3 or 4 yards in ſeven years, the water ſtanding under them; perhaps the *Moſs* near *Hixon* may have been ſuch a *Meer* too, now grown totally over from the *bank* ſide as 'tis ſuppoſed this would be, were not the *banks* cut away to prevent the loſs of *Cattle*, which ha's frequently happen'd here by reaſon of theſe hollow banks. In which two laſt *inſtances*, there being an increaſe of *bulk*, without *deterration* from any other place, poſſibly ſome may conclude ſomewhat of a genuine *vegetation*! For my part I think the ſame of them, I doe of the *peat pit* earths of *Oxfordſhire*, which will grow up again in ſome years[p], by virtue of the *ſtringy roots* that are always found in them, and are perpetually putting forward, which no more argues any *vegetation* in the *earth* it ſelf, than any other *plant* does that growes upon it.

13. Of ſuch kind of ſtringy bituminous earths (*roots* and *oily* ſubſtances being very *boyant*) the *floating Iſlands*, ſo much talk'd of, and admired in many parts of the *world* are moſt certainly conſtituted, whereof there are *two* about 2 foot broad, but about 30 or perhaps 40 foot long, in *Kinſon* poole, belonging to the courteous, and moſt obligeing Gent. *Walter Fowler* of St. *Thomas* Eſq; which An: 1680 began in *March* to move from under the *Hill* on the N. W. ſide of the *poole*, and came together like the *Symplegades*, firſt to the S. W. corner, where after they had continued about 3 weeks, they began to move again, and were come in *May* (when I was there) to the S. E. corner, lying juſt in the paſſage of the water out of the *poole* toward the *Mill*: I was told alſo of ſuch in *Aqualat Meer*, which 'tis like at firſt might be nothing but a kind of *Scum* upon the *water* mixt with a few *weeds*, cover'd over above in part, with *duſt* brought by the *winds*, and ſupplyed at the ſame time underneath, with other *viſcous terreſtrieties*, elevated by the *vapors* from the bottoms of the pooles; and ſo in proceſs of time becomeing a *fungous* ſort of *earth*, bearing *weeds*, dwarf *willows*, and ſuch kind of traſh, and *floating* above *water*. And from ſuch

[o] *Philoſoph. Tranſact.* Num. 117. p. 396. [p] *Nat. Hiſt. of Oxfordſhire* Chap. 3. §. 41.

ſmall

ſmall beginnings as theſe, the *floating Iſland* in the Lake *Loumund* in *Scotland* [q], others in the *Lago di Baſſanello*, the great *Tarquinian* Lake, and divers other Lakes in *Italy*, mention'd by *Pliny* and *Baccius* [r], may have alſo their Riſe (for ought I know) as well as theſe.

14. Having done with the *Soiles* in general, and the *peculiarities* attending ſome of them in their very *ſurface*, come we next to break the *turf*, which they cut in the *Moorelands* in the *Spring* time with an inſtrument call'd a *puſh-plow*, being a ſort of *ſpade*, ſhod ſomewhat in the form of an *arrow*, with a *wing* at one ſide, and having a croſs piece of wood, and the upper end of the *helve*, after the manner of a *Crutch*, to which they faſten a *pillow*, which ſetting to their *thigh* and ſo thruſting it forward, they will commonly diſpatch a large *turf* at two cuts; and then turn it up to *dry*; which in good weather is done on one ſide in eight, on the other, in 4 or 5 days at moſt: when *dryed*, if they intend them for *fuel* in winter, they pile them up round in manner of a *Hay-rick* 10 or 12 foot high, and ſet them ſtand all *Summer*: But if for *manuring* their land, they heap it up round a good quantity together on the ground, and ſet it on *fire*, which it will take of it ſelf, if it be *dry*; otherwiſe they give it the aſſiſtance of *wood*: Theſe heaps they will keep burning ſometimes 3 weeks together, ſtill covering them over with new *turf*, as the old ones burn away, only giving them vent by *Air-holes*, which they make with a ſtick: The *Aſhes* of theſe *turfs* they call *Eſs*, which laid on their *Meddows*, *Rye*, or *Barley* lands, ſome are of opinion goes further than *dung* or *Lime*. And theſe are all the uſes they put their *turf* too; only as in *Oxfordſhire* (beſide for *bowling-greens*, and *graſs-walks* in Gardens) they uſe it frequently to *ridg* and *head* their meaner houſes, and ſometimes wholy *thatch* them with it [s].

15. Under the uppermoſt *turf*, in their mooriſh boggy grounds, they alſo digg *peats*, which becauſe they order much after the ſame manner, as has already been deſcribed in *Oxfordſhire* [t], I paſs them over, and proceed to another *black*, *moiſt*, and *rotten* ſort of *Earth*, that lyes juſt under the *turf* in heathy ſoiles, ſuch as *Archer* moore near *Bereſford*, and upon a hill called the *Gun* above *Rudyerd-Hall*, where, as I was ſeriouſly told by the Worſhipful and moſt ingenious *Charles Cotton* Eſq; *Tho Rudyerd* of *Rudyerd* Eſq; & Mr *Gent* of *Aſhbourn*, if one ride in a dark night in ſo wet a ſeaſon that a *Horſe* breaks through the *turf*, and throws up this *black*, *moiſt*, *ſpungy* ſort of earth, He ſeems to fling up ſo much *fire*, which lyes ſhineing

[q] *Hieron. Cardani de Rerum Varietate* Lib. 1. cap. 7. [r] *C. Plinii* 2^di *Nat. Hiſt.* Lib. 2. cap. 95. & *Andr. Baccii de Thermis* Lib. 4. cap. 15. [s] *Nat. Hiſt. of Oxfordſhire* Chap. 3. §. 40. [t] *Ibid.* §. 41.

upon the ground like ſo many *Embers*; by the *light* whereof one *Horſe* may trace another, though at ſome diſtance, and it be never ſo *dark*; it continuing *light* upon the ground, and being gradually dying away, for near a quarter of an hour. To which let me add another agreeable *relation*, whereof I was informed by that worthy Loyal Gent. Capt. *Tho. Lane* of *Bentley* Eſq; who endeavouring to help a friend and *Kinſman* of His (one Mr. *Jones*) who caſually fell into a ditch in *Beſcot* grounds in the night time, and having ſtirred the mud and dirt pretty much in performing that good office; they preſently found their *gloves*, *bridles*, and *horſes*, as fas as the *water* or *dirt* had touch't them, all in a kind of faint *flame*, much like that (as He deſcribed it) of *burnt brandy*, which continued upon them for a miles rideing.

16. Of which odd *Phænomena*, though I might be reaſonably excuſed from giving any *account*, having ſeen neither of them my ſelf, the *Gent*: above mentioned having alſo been too incurious of the circumſtances, to afford me any more than a bare *relation*: Yet that the *Reader* might not be left wholy in the *dark* concerning theſe matters, let us conſider how many *things* there are beſide *fire* (for we may well preſume this to be none) that give any *light*; and in what *ſtate* and *condition* they are, whilſt they doe ſo; and then whether the *ſhining* of the *earths* and *mud* above mentioned, may not be reduced to ſome one, or more of them, at leaſt ſo far forth as that a tolerable *conjecture* may be raiſed from the *compariſons*. Firſt then upon enumeration of ſuch *luciferous bodies*; that ſend forth a *light*, and yet have ſtrictly nothing of the nature of *fire*, I find ſome of them to be *animate*, and others *inanimate*: As to the *animate*, 'tis evident that our *Engliſh Glow-wormes*, as well as the *American*, or *flaming-flyes* [v], have a luminous juice in their *tailes* which ſhines in the *dark*: And 'tis as certain if we may beleive the learned *Monſieur Auzout*, that the clammy moiſture of *Oyſters* that *ſhines* in the *dark* of a violet colour, comes from *luciferous wormes* that have their holes in the *ſhells*, whereof He diſtinguiſhes no leſs than three ſorts [w].

17. It is as true alſo, as 'tis a common *experiment*, that a *Cat* rub'd upon the back in the *dark* againſt the hair, ſends forth *luminous ſparks*. And there is a *Maſter* of *Arts* of this *Univerſity* that when He ſhifts Himſelf, emits ſuch *ſparks* ſo *violently* that they have been heard to *crackle* like the *ſparks* of *fire*: all which (with other *inſtances* that might be brought) ſeem mightily to confirme that there are ſuch *accenſions*, or *Platonic flames* in the *juices* of *Animals*, which *ſhine* only, and doe not *burn*, as were hinted and proved,

[v] *Sr. Tho. Brownes Enquiryes into Vulgar Errors* Lib. 3. cap. 27. [w] *Philoſoph. Tranſact.* Numb. 12. p. 204.

from

from the Aerial Noctiluca, and *ſolid Phoſphorus* mentioned §. 9 of the *ſecond Chap.* And as for the *inanimate luciferous bodies*, beſide the *Bononian* and *Balduinian* ſtones; the *Phoſphori*, *Smaragdinus* and *Fulgurans*, and of Dr. *Kunkelius*: Every body knowes that *rotten wood*, and *loaf Sugar ſcraped*, ſhine in the *dark*, and that the *Salt water* of the *Sea*, more eſpecially when the wind is *South Eaſt*, or in any point 'twixt *South* and *Eaſt*, gives ſo great a *light*, that being daſh't with *Oars*, it ſeems to run off them, juſt like *liquid-fire*; Nay it has been obſerved at ſome places to be ſo very *luminous* in ſtrong gales of wind (near the *Iſles* of *Cape-verd*) that Paſſengers have ſeen the very *Keel* of their *ſhip* by it, and *fiſhes* playing underneath it [x].

18. Secondly, as to the ſtate and condition theſe *luciferous bodies* are in, whether *animate* or *inanimate*, during the time of their *ſhineing*; it is plain that (as *fire* it ſelf) they ſhine only while they are in *motion*, upon *expence*, or *both*: Thus all the *Phoſphori* ſpend themſelves, and ſome of them *ſhine* moſt (that I ſay not *burn*) when any *violence* is offer'd them: *Sugar* ſparkles not, but when it is ſcraped: Nor doth the *Sea water* appear like *liquid flame*, but when daſh't together by *ſtormes*, or ſtriken againſt *Ships*, *rocks*, or with *Oars*. The *Cat* ſends not forth its *luminous ſpirits*, but upon *ruhing* againſt the hair, and opening the *pores*, whereby no doubt there is ſome *expence* of them too, as there is alſo of that *Gentlemans*, that emits them ſo freely. As for the *Glow-wormes* whether *Engliſh*, or thoſe of *Jamaica*, and the *worms* on *Oyſters*, they ſhine no longer than whilſt they are *living*, and their *luminous humors* are kept in *motion*. My *Lord Bacon* indeed confeſſes that they doe continue their *ſhineing* a little after their *death* [y]: Dr. *Stubbs* informes us that thoſe of *Jamaica* will alſo hold their *light* for ſome days after [z]: and the learned and moſt ingenious Sr. *Thomas Browne* ownes that its true that a *Glow-worme* will afford a *faint light*, almoſt a *days* ſpace after many conceive it *dead*: But then (ſays He) this is but a miſtake in the compute of *death*, and *term* of *diſanimation*; for indeed it is not then *dead*, but if it be diſtended will ſlowly contract it ſelf again, which when it cannot doe, it ceaſeth to *ſhine* any more [a]. Beſide in caſe it would not thus *contract* it ſelf, it would be too peremptory notwithſtanding to determin an *Inſect* to be dead, when it ceaſes to move; for that many times they are not ſo, though they afford not the viſible evidences of life, as may be obſerved in *flyes*, which when they appear even quite forſaken of their *formes*; by virtue of the *Sun*, or other *warmth*, quickly convince us, by their motion, they had never loſt them.

[x] *Ligon's Hiſt. of the Barbadoes* p. 7. [y] *Nat. Hiſt. Cent.* 4. *Num.* 352. [z] *Philoſoph. Tranſact. Numb.* 36. [a] *Sr Tho. Brown's Enquiries into Vulgar Errors* Lib. 3. cap. 27.

19. Now though it be poſſible indeed that there may be ſmall *ſubterraneous Animals*, ſuch as the *Oyſter wormes* &c. that may be bred and live in ſuch *black, bituminous, moiſt, rotten earths*, or the *mud* of *ditches*, and upon ſudden commotions may ſend forth ſuch *lights* as were at large above mention'd; Yet me thinks they may rather proceed from ſome *ſalino-ſulphureous* mixtures that may be in thoſe *Earths* and *Mud*, which being ſmartly moved as in the *ditch*, or violently ſtriken with the *Horſes feet*, as the *Sea-water* with *Oars* (which is alſo *ſalino-ſulphureous* as was plainly ſhewn above *Chap.* 2. §. 124) may more likely occaſion ſuch *lights* from the ſame *principles* (howſoever they operate) as in the *Salt water* of the *Sea*, though others more probably may think (both *earths* and *mud* ſeeming in a ſtate of *putrefaction*) that they may become *luciferous* by the ſame means, that *rotten-wood* and *ſtinking fiſh* are ſo: which yet ſhine not ſo much upon account of their *rottenneſs* as they doe of their *moiſture* (as it is in theſe Earths, and the liveing tree in *Jamaica*, which ſhines moſt vividly after a ſhower of raine *,) both of them ceaſing to *ſhine* rateably as they become *dry*. Nor can it be objected that theſe are neither in *motion* or *expence*, ſince *putrefactions* are nothing elſe but gradual *conſumptions*, haveing all of them alſo an *inward motion* in them, as well as *fire* or *light*.

20. At *Pipe-hill* in a hallow Lane S.W. from Mr. *Bulls* houſe, about two bow-ſhoots down the Lane on the left hand, in the ſide of the bank which ſeems to be of an orange colour'd *clay*, I found a nother ſhineing ſort of *Earth* (but not in the *dark* as the former) alſo of an orange colour, though made up in great part, with ſilver colour'd *Laminæ*, ſomwhat weighty, very unctuous, and guilding the hands if rub'd upon them; of which I was inform'd by my moſt worthy Friend, *Sebright Repington* of *Ammington* Eſq; who though a *Warwickshire* Gent. yet ſo zealous was He for the promoting this *work* that He became none of the leaſt *Encouragers* of it: I was ſhewn the ſame again at the ſigne of the *Starr* at the foot of *Brereton Hill*, by the Worſhipfull *William Chetwynd* of *Rugeley* Eſq; where in digging a *Cellar* they found great quantities of it. Theſe at firſt I thought might be the *Mica arenoſa* of the *Naturaliſts*, which the *Germans* call *Catſilver* or *Glimmer*, for being *dryed* it became friable; but bringing it to a fiery triall in a *Crucible*, I found it of ſo obſtinat a nature, that it would neither change its *colour* or *ſubſtance* by it, which all the ſorts of *Micæ* are ſaid to doe [b]. Then I tryed it with the ſtrongeſt *acids* I could get, and divers other things, but it would not ſtir or make *Ebullition* with any of them; ſo that I preſently concluded it to be a ſort of *Talc*, which

* *Trapham's Hiſt. of Iamaica* Chap. 2. p. 29. [b] *Geo. Agricola in Bermanno.*

ſays

ſays *Cæſalpinus*, *in igne perennis eſt, neque enim funditur, neque comburitur, neque colorem amittit*, and therefore by the Ancients called *Argyrodamas*, *quaſi argentum indomitum*, it remaining invincible even to fire it ſelf [c]: Whence the *Chymiſts* find it ſo difficult to draw an *oile* of *Talc*, which yet in this ſort ſeems already done to their hands, for between the fingers it feels as ſoft and oily as butter, though it have ſomewhat too of the nature of the *Schiſtus*, its *Laminæ* lying all the ſame way ſo as to give it a *grain*; but they are not ſo large, but it may be eaſily broken contrary to it: nay when dryed it becomes ſo very friable, that it ſerves very well in ſtead of *ſand* to ſtrew upon *Letters*, like the *Ammochryſos mollis friablis* of *Cæſalpinus* [d] and *Kentman* [e], which is the only uſe I can yet find it has, though I have made many tryalls with it in relation to guilding, painting &c.

21. Amongſt the *underturf Earths*, the next that preſent themſelves, are the *arable ſoiles*, which to mention more particularly than above, are either *Clay*, *marly*, *ſandy*, *gravelly*, *light-mould*, *blackland*, *mooriſh* and *gouty land*; each of which they fit with their moſt agreeable *grains* and *manures*, but the due application of them belonging to the *Chapter* of *Arts*, I ſhall conſider only here the ſeverall ſorts of *Marles*, which though *manures* to other lands, yet being *Earths* too themſelves, they plainly appertain to this place. Whereof I find in *Staffordſhire* about four or five ſorts. 1. a *red fat earthy* ſort, having ſome *veins* of *blew* (which is the moſt common) found upon the *Trent* ſide about *Ingeſtre*, *Tixall*, *Heywood* &c, lyeing generally about 18 inches or two foot under the ſurface, though ſometimes it lyes ſo *ebb* (as they call it) that they plow up the *head* of it, otherwiſe that which covers it, is a *hungry clay*, which yet makes them this recompence, that it holds the *Marle* ſo together above, that undermining it, they can have a *fall* of ſeven or eightſcore loads at a time, which could not be, were this taken away, beſide being commonly blended with 3 or 4 yards depth of good *marle* underneath, it is hardly ſeen, much leſs doth any hurt. 2 About *Swynnerton*, and the more *Northerly* parts of the *Country* they have a *ſtiff blewiſh* ſort *Marle* with *red* veines; and 3 another ſort mixt for the moſt part *blew* and *red*, that is not ſo *ſtiff*, much better for *corne*; both which (like the former) will fall with undermining, & are commonly dug for 4 ſhillings 6 pence the hundred load, each load containing 12 meaſures: And 4 the learned and inquiſitive Sr. *Simon Degg* told me of another *blew Marle*, ſomewhere about *Kinſton*, much like *Fullers earth*, which

[c] *Andreæ Cæſalpini de Metallicis* Lib. 2. cap. 59. [d] *Ibidem.* [e] *Io. Kentmani Nomenclaturæ rer. foſſ. tit.* 4.

but

but that it differs in colour, I ſhould otherwiſe have thought to have been the *Giſchromargon* of *Pliny*[f].

22. Beſide theſe, about *Charnes*, *Broughton*, *Swynerton*, *Beech*, *Ellarton*, and *Heywood*, they have harder, ſtony, flatty ſorts of *Marles*, at ſome places called *Slat*, at others *Dice-Marle*; which will not be got by *falling* like the former, but muſt be dug with *pick* and *Crow*, and coſts at ſome places 8 or 9ˢ the hundred getting, it riſeing ſometimes in great ſtones as much as two Men can load: of this ſort there is *white*, *red*, and *blew*; the latter whereof perhaps may be the *Columbine Marle* of *Pliny*, rather than any of of the reſt, by reaſon of its colour, though they all equally fall under his definition, being fetcht out of the ground in *clots* or *lumps*[g]: Which though moſt of them very hard, yet by the help of *froſts*, *Sun*, and *rains*, they diſſolve like *Lime*, and ſpread well enough upon the ground in a little time, though at ſome places for expedition they apply a little Iron *mallet*. And theſe laſt are the *Marles* preferr'd by the *Huſbandmen* much before the *Clay earthy* Marles; which bind and ſtiffen their lands upon long tillage; whereas theſe looſen the ſtiffeſt clay, and make it yeild much better *graſs* than otherwiſe it would. In ſhort theſe ſeldom are known to faile the expectation of the *Huſbandman*, upon whatſoever ſort of *land* they have occaſion to lay them, whether for *corne* or *graſs*: Beſides, theſe are accounted more *beneficial* than the others, becauſe ſpending themſelves but gradually and laſting longer upon the ground, though the others' tis like may fatten it ſooner; according to that of *Agricola*, *Quanto quæque marga eſt pinguior, tanto magis ea pingueſcunt arva; quo durior, eo plures annos durat antequam ſolvatur.* which is all I can think off at preſent coucerning *Marles* as they relate to *Huſbandry*, only in general that they ſeem amongſt *Earths*, to be analagous to the *fat* in *Animals*; and that they are commonly reputed the better, the deeper they are dug; which tis like may be true enough, becauſe their *Salts* in the uppermoſt parts in all probability may indeed be ſpent in the production of *Plants*.

23. But beſide the uſe of *Marle* in matters of *Huſbandry*, they have another uſe of them here in order to *building*, very good *bricks* being made of the *reddiſh clay marle*, whereof I ſaw great quantities at Mr. *Chetwynd's* at *Ingeſtre*, and many other places: They have very good *brick-earth* likewiſe about *Ricarſcot* near *Stafford*, and on a bank by the way ſide, betwixt *Newcaſtle* and *Keele*, I met with a peculiar ſort of *brick-earth*, which when burnt became all over *blew*, thoſe bricks only which were placed furtheſt from the fire, having any *redneſs* in them: The *Romans* ſeem to have made

[f] *Plinii Nat. Hiſt.* Lib. 17. cap. 8. [g] *Ibidem.*

uſe

OF THE HOMEAV HEARCH OFFICE ASIATIC SOCIETY

TAB. VII.

ad pag. 121.

M. Burghers delin. et sculp.

uſe of ſome ſuch *Clay* as this for makeing their *Urns*, thoſe found at St. *Albans*, and near *Newington* in *Kent* being many of them *blew*; Whence we may reaſonably conclude that there muſt be ſuch *clay* in many other places, were they ſo well ſearched out elſwhere, as they have been in *Yorkſhire*, by that curious *Obſerver Martin Liſter* Eſq; who informes me that ſuch *clay* is found in many places amongſt the mountains of that *County*. Beſide for the *Bricklayers*, there are *Earths* alſo uſefull in many other *Trades* found in *Staffordſhire*, ſuch as *Terra Saponaria* Fullers earth, whereof I met with ſome, much like that of *Wobourn*, near *Statfold*, but in no great quantity; what there might be found, were ſearch made, remains uncertain; However it may not be amiſs for the ingenious *Proprietor* of that *Eſtate*, upon this hint, to be mindfull whenever He ha's occaſion to digg thereabout, what ſorts of *Earths* are thrown up; for could He meet with a quantity of this, I need not acquaint, what would be the advantage.

24. As for *Tobacco-pipe clays* they are found all over the *County*, near *Wrotteſley* Houſe, and *Stile Cop* in *Cannock-wood*, whereof they make *pipes* at *Armitage* and *Lichfield*, both which though they are *greyiſh clays*, yet burn very *white*; There is *Tobacco-pipe clay* alſo found at *Darlaſton* near *Wedneſbury*, but of late diſuſed, becauſe of better and cheaper found in *Monway-field* betwixt *Wedneſbury* and *Willingſworth*, which is of a *whitiſh* colour, and makes excellent *pipes*: as doth alſo another of the ſame colour dug near the *Salt water* poole in *Penſnet* Chaſe, about a Mile and ½ South of *Dudley*. And *Charles Riggs* of *Newcaſtle* makes very good *pipes* of three ſorts of Clay, a *white* and a *blew*, which He has from between *Shelton* and *Hanley green*, whereof the *blew* clay burns the *whiteſt*, but not ſo *full* as the *white*, i. e. it *ſhrinks* more; but the beſt ſort He ha's from *Grubbers Aſh*, being *whitiſh* mixt with *yellow*, it is a ſhort britle ſort of *Clay*, but burnes *full* and *white*, yet He ſometimes mixes it with the *blew* beforementioned. But the *Clay* that ſurpaſſes all others of this *County*, is that at *Amblecot*, on the bank of *Stour*, in the pariſh of *old Swynford* yet in *Staffordſhire*, in the lands of that judicious and obliging Gent. the Worſhipfull *Harry Gray* of *Enfield* Eſq; whoſe beautifull *Manſion*, perhaps the beſt ſituat of any in the *County*, is here repreſented *Tab.* 7. I ſay the moſt preferrable *clay* of any, is that of *Amblecot*, of a *dark blewiſh* colour, whereof they make the beſt *pots* for the *Glaſs-houſes* of any in *England*: Nay ſo very good is it for this purpoſe, that it is ſold on the place for ſevenpence the buſhell, whereof Mr. *Gray* has ſixpence, and the *Workman* one penny, and ſo very neceſſary to be had, that it is ſent as far as *London*, ſometimes by *Waggon*, and ſometimes by *Land* to *Beaudley*, and ſo down the *Severn* to *Briſtol*, and

thence to *London*: the goodneſs of which *clay*, and cheapneſs of *coal* hereabout, no doubt has drawn the *glaſs-houſes*, both for *Veſſells* and *broad-glaſs*, into theſe parts; there being divers ſet up in different formes here at *Amblecot*, *old-Swynford*, *Holloways-end* and *Cobourn brook*.

25. Other *Potters-clays* for the more common wares, there are at many other places, particularly at *Horſley-Heath* in the pariſh of *Tipton*; in *Monway-field* abovemention'd, where there are two ſorts gotten, one of a *yellowiſh* colour mixt with *white*, the other *blewiſh*; the former ſtiff and weighty, the other more friable and light; which mixt together, work better than apart: of theſe they make divers ſorts of *Veſſels* at *Wedneſbury*, which they paint with *Slip*, made of a *reddiſh* ſort of *Earth* gotten at *Tipton*. But the greateſt *Pottery* they have in this *County*, is carryed on at *Burſlem* near *Newcaſtle* under *Lyme*, where for making their ſeverall ſorts of *Pots*, they have as many different ſorts of *Clay*, which they dig round about the *Towne*, all within half a miles diſtance, the beſt being found neareſt the *coale*, and are diſtinguiſh't by their *colours* and *uſes* as followeth.

1. *Bottle clay*, of a bright whitiſh ſtreaked yellow colour.
2. *Hard-fire clay* of a duller whitiſh colour, and fuller interſperſt with a dark yellow, which they uſe for their *black wares*, being mixt with the
3. *Red blending Clay*, which is of a dirty red colour.
4. *White-clay*, ſo called it ſeems though of a blewiſh colour, and uſed for making yellow-colour'd *ware*, becauſe yellow is the *lighteſt* colour they make any *Ware* of.

all which they call *throwing* clays, becauſe they are of a cloſer texture, & will work on the *wheel*;

26. Which none of the three other *clays*, they call *Slips*, will any of them doe, being of looſer and more friable natures; theſe mixed with water they make into a conſiſtence thinner than a *Syrup*, ſo that being put into a *bucket* it will run out through a *Quill*, this they call *Slip*, and is the ſubſtance wherewith they *paint* their *wares*; whereof the

1. Sort is called the *Orange Slip*, which before it is work't, is of a greyiſh colour mixt which orange balls, and gives the ware (when annealed) an *orange* colour.
2. The *white Slip*, this before it is work't, is of a dark blewiſh colour, yet makes the ware yellow, which being the *lighteſt* colour they make any of, they call it (as they did the *clay* above) the *white Slip*.
3. The *red Slip*, made of a dirty reddiſh clay, whcih gives *wares* a black colour.

neither

neither of which *clays* or *Slips* muſt have any *gravel* or *Sand* in them; upon this account, before it be brought to the *wheel* they prepare the *clay* by ſteeping it in water in a ſquare pit, till it be of a due conſiſtence; then they bring it to their *beating board*, where with a long *Spatula* they beat it till it be well mix't; then being firſt made into great *ſquariſh* rolls, it is brought to the *wageing board*, where it is ſlit into flat thin pieces with a *Wire*, and the leaſt ſtones or gravel pick't out of it; This being done, they *wage* it, i. e. knead or mould it like *bread*, and make it into round *balls* proportionable to their *work*, and then 'tis brought to the *wheel*, and formed as the *Workman* ſees good.

27. When the *Potter* has wrought the clay either into *hollow* or *flat ware*, they are ſet abroad to dry in fair weather, but by the fire in foule, turning them as they ſee occaſion, which they call *whaving*: when they are dry they *ſtouk* them, i. e. put *Ears* and *Handles* to ſuch *Veſſels* as require them: Theſe alſo being dry, they then *Slip* or *paint* them with their ſeverall ſorts of *Slip*, according as they deſigne their *work*, when the firſt *Slip* is dry, laying on the *others* at their leaſure, the *Orange Slip* makeing the ground, and the *white* and *red*, the *paint*; which two colours they break with a wire *bruſh*, much after the manner they doe when they *marble* paper, and then *cloud* them with a *penſil* when they are pretty dry. After the *veſſels* are painted, they *lead* them, with that ſort of *Lead-Ore* they cal *Smithum*, which is the ſmalleſt *Ore* of all, beaten into duſt, finely ſifted and ſtrewed upon them; which gives them the *gloſs*, but not the colour; all the *colours* being cheifly given by the variety of *Slips*, except the *Motley-colour*, which is procured by blending the *Lead* with *Manganeſe*, by the *Workmen* call'd *Magnus*. But when they have a mind to ſhew the utmoſt of their *skill* in giving their *wares* a fairer *gloſs* than ordinary, they *lead* them then with lead *calcined* into powder, which they alſo ſift fine and ſtrew upon them as before, which not only gives them a higher *gloſs*, but goes much further too in their work, than *Lead-Ore* would have done.

28. After this is done, they are carryed to the *Oven*, which is ordinarily above 8 foot high, and about 6 foot wide, of a round copped forme, where they are placed one upon another from the bottom to the top: if they be *ordinary wares* ſuch as *cylindricall Butter-pots* &c. that are not *leaded*, they are expoſed to the *naked* fire, and ſo is all their *flat ware* though it be *leaded*, haveing only *parting-ſhards*. i. e. thin bits of old pots put between them, to keep them from *ſticking* together: But if they be *leaded hollow-wares*, they doe not expoſe them to the *naked* fire, but put them in *ſhragers*, that is, in courſe metall'd pots, made of *marle* (not *clay*) of divers formes according as their *wares* require, in which they

put commonly 3 pieces of *clay* called *Bobbs* for the ware to ſtand on, to keep it from ſticking to the *Shragers*; as they put them in the *ſhragers* to keep them from ſticking to one another (which they would certainly otherwiſe doe by reaſon of the *leading*) and to preſerve them from the vehemence of the *fire*, which elſe would *melt* them downe, or at leaſt *warp* them. In 24 hours an *Oven* of *Pots* willl be burnt, then they let the *fire* goe out by degrees which in 10 hours more will be perfectly done, and then they draw them for *Sale*, which is cheifly to the poor *Crate-men*, who carry them at their *backs* all over the *Countrey*, to whome they reckon them by the *piece*, i. e. *Quart*, in *hollow ware*, ſo that 6 pottle, or 3 gallon *bottles* make a *doſen*, and ſo more or leſs to a *doſen*, as they are of greater or leſſer *content*; The *flat wares* are alſo reckon'd by *pieces* and *doſens*, but not (as the *hollow*) according to their *content*, but their different *bredths*.

29. Having done with the *Smectic* and *figuline Earths*, come we next to ſuch as are uſed in *colouring* and *painting*; amongſt which we may reckon the *yellow* and *red Ochres*, ſometimes met with (but in ſmall quantities) near *Stanſop* in the pariſh of *Allſton-field*; the *yellow Ochre* found upon *Willenhall green* about a yard deep, which they beat up upon boards, and ſeparate from *gravel*, & then make into *oval Cakes* which they ſell abroad for 4 pence *per doſen* for the *Glovers* uſe; as they doe alſo a ſort of *blew clay* found at *Darlaſton* near *Wedneſbury* amongſt the *Iron ſtone*, which beat up after the ſame manner and made into *cakes*, are ſold alſo to the *Glovers*, to give their wares an *aſh-colour*. *Ruddle* or *Red-Ocher* they dig very good at the pariſh of *Ipſton*, which they obſerve to lye cheifly in their beſt lands. I was told there was of it alſo about *Dilhorne*, and at *Kingswood poole*, within *Wrotteſley* park. And I was informed of a ſort of *black Chalk* found between the beds of *Chirts*, and the beds of *gray Marble*, ſometimes a finger thick, and ſometimes leſs, in *Langley Cloſe* near *Stanſop* (but in the pariſh of *Wetton*) belonging to the right Honorable *William* Earle of *Devon*. To which add a ſort of fine *reddiſh Earth*, which I found under a rock where the *Springs* came forth near *Himley* Hall, belonging to the right Honorable the Lady *Dudley*, that when dry, proved near as good a *red Chalk*, as any we have from *France*. As for *Medicinal Earths* I met with but few in this *Country*, the moſt likely to be ſuch is a *red* ſort of *Earth*, near *Tennal Hall* in the pariſh of *Harborn* by the way ſide, which *diſcolours* the hands, and ſtrongly *adheres* if put to the *tongue*, like the *Bolus Armenus*; but whether as uſefull as that, I left to the tryal of the learned and ingenious Sr. *Ch: Holt* a near *Neighbour* to it, whereof I have not yet had the favour to hear. I was told alſo at *Treaſle* by Mr. *William Barneſley*,

Barneſley, that they had thereabout a ſort of *white pebbles* containing a *mealy* ſubſtance within them, that perhaps may be the *Agaricus mineralis* of the *Naturaliſts*, of which becauſe at large in my *Hiſtory* of *Oxfordſhire*[h], no more of it here.

30. And theſe are all the *Earths* ſtrictly ſo call'd (amongſt all thoſe 179001060 different ſorts of *Earths* reckon'd up by ſuch as have written *de Arte combinatoria*) that I could find of *uſe* in this *County*; yet I muſt not conclude this *Chapter* here neither, the other *media Mineralia* ſuch as *Sulphurs*, *Bitumens*, &c. of a middle nature betwixt *ſtones* and *Metalls*, being alſo taken in under this *head*, by moſt (if not all) the *Geoponic* writers. Upon which account the *Hiſtory* of *Pit-coal*, otherwiſe called *Sea-coale* (though in this *inland Country*, and ſeldom carryed by *water*, much leſs by *Sea*) belongs to this place: Whereof there being great plenty of divers *kinds* found here, I ſhall firſt give an account of the ſeverall *Species* of them. 2. of their *dipping*, *baſſeting* or *cropping*, and their *Rows* or *Streeks*, 3. of the *meaſures* or *floores* there are of them, their partings or *Lamings*, with the terms of *Art* for them in different places, 4. of the *damps* that attend them, by what means they ſeem to be *occaſiond*, and how *cured*, 5. how the *coal-pits* come ſo many of them to take *fire*, and 6. of their ſeveral ways of *finding* and *working* them, which laſt though more properly belonging to the *Chapter* of *Arts*, yet the right underſtanding them for the moſt part ſo intimatly depending on ſome of the *particulars* juſt preceding, I thought fit rather to miſplace them here, as I did the *Art* of *Pottery* above, than render either of them the leſs intelligible to the *Reader*: And the rather too that this *chapter* might bear ſome proportion with the reſt, the *Arts* relating to *Earths* being ſufficient beſide, to fill up a competent ſhare of their owne *Chapter*.

31. But firſt of the ſeveral *Species's* or rather *ſorts* of *Coale*; which though they differ ſome what in all *pits*, nay in the ſeveral *meaſures* of the ſame *pit*, yet none of them ſo ſignally as to obtain a diſtinct name, except the *Cannel-coal*, and the *Peacock-coale*, from the common *pit coal* of *Wedneſbury* and other parts; which yet all come under the common *Genus* of *Lithanthrax* or *Stone-coale*, they being all of a competent hardneſs, and ſeem to be nothing elſe but *Bitumen* indurated by ſubterraneal heats, though not equally; the *Cannel-coal* being the hardeſt, and of ſo cloſe a texture, that it will take a paſſable *poliſh*; as many be ſeen in the *Choir* of the *Cathedral Church* of *Lichfield*, which in great part is paved *Lozengy*, black and white (as other *Churches* with *Marble*) with *Cannel-coale* for the black, and *Alabaſter* for the white, both plentifully found in this *Country*; which when kept *clean*, ſo well repreſent black and white

[h] *Nat. Hiſt. of Oxfordſhire*, Chap. 3. §§. 26. and 30.

Marble, that to an incurious heedleſs Eye, they ſeem to be the *ſame*: It turnes like *Ivory* into many pretty knacks, ſuch as *Ink-boxes*, *Candleſticks* &c. They cut it alſo into *Salts*, *Standiſhes*, and carve *Coats* of *Armes* in it, witneſs that of the right Honorable *William Lord Paget*, in the Gallery of his ſtately Seat at *Beaudeſart*, which as a thankfull memorial of the Encouragement He ſo readily afforded this *Work*, is here repreſented *Tab.* 8. And the rather here becauſe this *Coale* is dug in the *Park* adjoyning, alſo belonging to his Lordſhip, about 20.30. or ſometimes 40 fathoms deep, lyeing between other beds of a ſofter kind, and is the beſt in *Staffordſhire*, or any where elſe that we know of, except that in *Lancaſhire*, which (they ſay) has no grain, and therefore not cleaving as this will doe, upon which account eſteemed ſomwhat better for makeing ſuch *Utenſills* as were mention'd above.

32. And yet this at *Beaudeſart* will work ſo very well, that the *Kings* Majeſties head is ſaid to have been cut in it by a *Carver* at *Lichfield* reſembleing Him well: In the working whereof eſpecially turning it, they uſe no edg'd tooles, it preſently rebating them; but at firſt they uſe raſps, then finer files, and laſt *Sealskin* and *Ruſhes*, theſe giveing the ultimat gloſs, which is ſometimes ſo high, that it ha's been thought to be the *lapis Obſidianus* of the ancients; but its *non* performance of the office of the *Baſanitis* in touching gold and ſilver, as *Cæſalpinus* aſſerts the *Obſidian* ſtone will doe, gives full ſatisfaction it cannot be ſo: much rather could I afford it to be a *Species of* the *Gagates Lapis*, which all agree to be nothing elſe but indurated *Naphtha* or *Petroleum*, and to take fire like this, only this has not that *Electricity* of drawing ſtraws and chaff, which *Rulandus* and others ſay that *Jeat* ha's; ſo that they muſt not be allowed to be the ſame, though they agree in their original principles, colour, and curious politure. Notwithſtanding which, the cheifeſt uſe they make of this *coale*, is for fireing, wherein they much obſerve the grain of the *coale*, for if they would have it burn ſlow (as the poorer and thriftier ſort of people are beſt pleaſed it ſhould) they lay it flat ways upon the fire, as it lay before in the bed or *meaſure*; but if they would have it burn quick and flame clear (as the *Gentry* commonly will) they *ſurbed* it, i. e. ſet it edgways, the cleaving way next the fire, by which means it ſo eaſily admits it, that it preſently flames as bright as a Candle, whence parhaps not unlikely it may receive its name, *Canwyll* in the *Britiſh* tongue ſignifying a *Candle*, from Cann, *candidus*; and Gwyll, *tenebræ*; *eo quod albere, h. e. lucere faciat tenebras*, ſays the learned Dr. *Davies* in his *Britiſh Dictionary*.

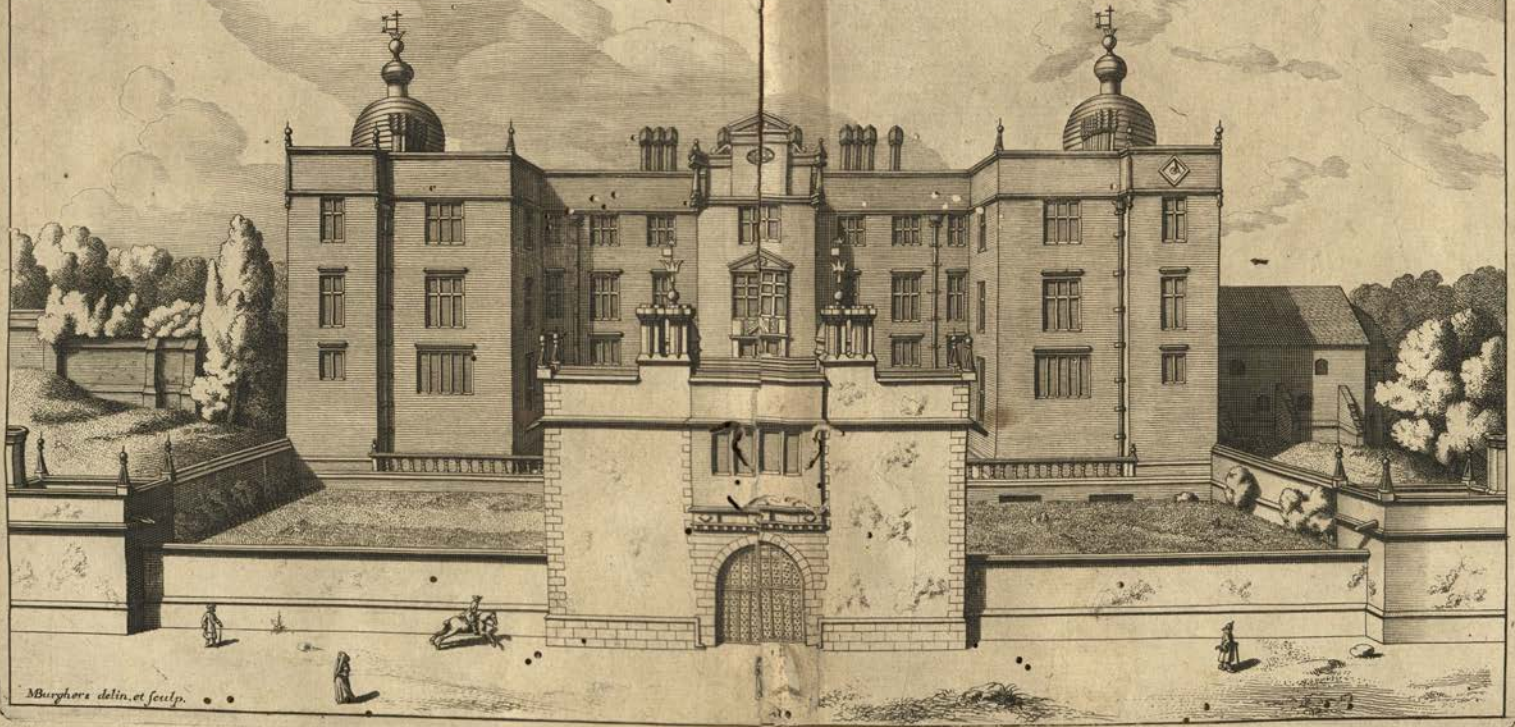
33. The *Peacock-coal* dug at *Hanley-green* near *New-Caſtle* under *Lyme*, is much ſofter than the *Cannel*, not exceeding the com-

mon

TAB. VIII.

ad pag. 126.

To the right Honble
WILLIAM Lord PETTY
Baron of BEUDESART
This 8. Table
Shewing the Eastern Front of
BEUDESART House
with all dutifull Observance
is humbly presented
by R. P. L. D.



MBurghers delin. et sculp.

mon ſorts of other pits in hardneſs, the *blocks* of both being divided into much more ſenſible plates or *Scaiæ*, of about a $\frac{1}{4}$ of an inch thick, which appear to the naked Eye; whereas the *Cannel* though it have a grain, yet the joynts are not viſible; upon which account this is no more capable of politure than the common coal, yet is more gay to the ſight, than if it were; it moſt vividly repreſenting all the colours of the moſt glorious feathers in a *Peacoks* trayne (whence it borrowes its name) and that not emphatically, like the colours in a glaſs *Priſme*, or of variable ſilk, which are evanid at leſt, if not fantaſtical: but ſolidly & genuinly, the colours remaining fixt in all manner of obverſions of the *coal*, though not ſo vivid when turn'd from the light. Whence 'tis plainly deducible, that this *coal* has great variety in its texture, and that its parts and pores are not all of a ſhape, as 'tis probable they are for the moſt part in the *Cannel*, and the common coal of other pits, which appear uniformly black in all parts alike; diverſity of colours in opacous bodies (ſuch as this of the *peacock-coal* is) ſeeming to ariſe from the various figure, ſituation, and order of the inunmerable *ſuperficiculæ* that are differently obverted to the Eye, and to one another, whereof ſome reflect the light mingled with more, others with leſs ſhade *. Nor muſt it be objected that the *ſuperficies* of this ſeems as ſmooth and polite as any other coal: for howſoever it may apear to our dull ſight and touch, it is certainly only ſo in a *popular*, or at moſt a *phyſical*; but by no means in a rigid *Geometrical* ſenſe. From which great variety of protuberancies it is, that the body of this *coal* muſt needs be of an open texture, whence 'tis like it comes to paſs that it burns ſo ſwift, and is therefore better for *Smithy's*, than *Kitchin* fires.

34. Which are much better ſupply'd by the common *coal* of the Country, eſpecially that of *Wednesbury*, *Dudley*, and *Sedgley*; which ſome ſtick not to preferr even to the *Cannel* it ſelf; the texture and other qualities thereof being, ſuch viz. that it is a fat ſhineing coal, having a pretty open grain, lying ſeldom in a level with the *plane* of the *Horizon* but moſt times ſome what inclining to it (according to which it cleaves into blocks at the diſcretion of the Workman) that it burns away with a ſweet bright flame, and into white aſhes, leaving no ſuch Cinder as that from *New-Caſtle* upon *Tine*. Of which ſort there is ſo great plenty in all parts of the *County* (eſpecially about the three aboue-mention'd places) that moſt commonly there are 12 or 14 *Colerys* in work, and twice as many out of work, within 10 miles round; ſome of which afford 200 tuns of

* *There is much ſuch a Coalmine bordering upon* Mendip *which they call there by the ſame name, that Mr.* Beaumont *thinks receives it's reſplendency from a* ſulphury *tincture, and ſo perhaps may ours. Philoſoph. Collect.* Numb. 1.

coal

coal yearly, others three, four, or five thouſand Tuns, the upper or topmoſt beds above the *Iron-ſtone*, lying ſometimes ten, eleven, or twelve yards thick: nay I was told by Mr. *Perſehouſe* of nether *Gournall*, that in his grounds at *Etingsall* in the pariſh of *Sedgley*, in a place call'd *Mooreſields*, the bed of coal lyes 14 yards thick; in ſo much that ſome acres of ground have been ſold hereabout for a 100 pound per acre; I was inform'd of one acre, ſold for 150 pound, and well indeed it might be ſo, ſince out of one ſingle ſhaft there have ſometimes been drawn 500 pounds worth of *coal*. Nor indeed could the *Country* well ſubſiſt without ſuch vaſt ſupplies, the wood being moſt of it ſpent upon the *Iron-works*, for it is here (as well as other *Countries* that fetch their winter ſtores from hence) thought not only fit for the *Kitchin*, but all other offices, even to the *parlour* and *bedchamber*.

35. And not only in privat *Families*, but now too in moſt, if not all the *Mechanic profeſſions* (except the *Iron-works*) that require the greateſt expence of fewell; witneſs the *glaſs-houſes*, and *Salt-works*, *brick-making*, and *maulting*; all which were heretofore performed with wood or charcoal, eſpecially the laſt, which one would think ſhould hardly admit of the unpleaſant fumes of ſuch fireing: nor indeed does it, no more than of wood; for they have a way of *Charring* it (if I may ſo ſpeak without a *ſoleciſme*) in all particulars the ſame as they doe wood, whence the coal is freed from theſe noxious ſteams, that would otherwiſe give the *mault* an ill odour. The *coal* thus prepared they call *Coaks*, which conceives as ſtrong a heat almoſt as *charcoal* it ſelf, and is as fit for moſt other uſes, but for *melting*, *fineing*, and *refining* of *Iron*, whch it cannot be brought to doe, though attempted by the moſt ſkillfull and curious *Artiſts*. In the *glaſs-houſes*, *Salt-works*, and *Brick-clamps*, they uſe the raw *coal* as brought from the pit; in the former whereof, as to the proportion, I am not ſo certain; but in the *Staffordſhire Salt-works*, they ſpend two Tuns to a drawing; and for burning a *Clamp* of 16000 bricks, they uſe about 7 Tunns of coal. The laſt effort that was made in this *Country* for making *Iron* with *pit-coal*, was alſo with raw *coal*, by one Mr. *Blewſtone* a high-*German* who built his furnace at *Wedneſbury*, ſo ingeniouſly contrived (that only the *flame* of the *coal* ſhould come to the *Oare*, with ſeverall other conveniencies) that many were of opinion He would ſucceed in it. But experience that great baffler of ſpeculation ſhewed it would not be: the ſulphureous vitriolic ſteams that iſſue from the *Pyrites*, which frequently, if not always, accompanies *pit-coal*, aſcending with the flame, & poyſoning the *Ore*, ſufficiently to make it render much worſe *Iron*, than that made with *char-coal*, though not perhaps ſo much worſe, as the body of *coal* it ſelf would poſſibly doe.

36. In

36. In digging all ſorts of *coal* (that appears not to the *day*, as the *Miners* ſpeak) after the *Soil* or arable, and the gravel, Sand, grit, and clays are removed, which keep no courſe; all the *Baſs*, *Freeſtone* (of what ſort ſoever) *Clunches*, *Bats*, and *Partings* lye one above another, and keep a regular courſe; wherein the things moſt obſervable are their *riſe*, *croping* or *baſſeting*; their *diping*; and the *row or ſtreek*; which after the *Species* or ſorts of *coal*, were the next things propoſed to our conſideration. In the handling whereof I muſt firſt acquaint the *Reader*, that *coal* generally in this, as in all other *Countrys*, lyes in the earth obliquely i. e. neither in *plano Horizontis*, nor *perpendicular*; but *riſeing* one way toward the ſurface of the Earth, till it comes within a foot or two, ſometimes a yard or more, of the *ſuperficies*, which the workmen in this Country generally call *baſſeting*, others *croping*; and *diping* into the earth the other way ſo deep, that it is ſeldom or never followed to the end, or indeed any thing near it (except where a Mine *lips* or *crops* up again, as ſometimes it does, as well in the *dip* as the *row*) by reaſon the *Workmen* are either prevented by waters, or too deep a draught. This *baſſeting*, and *diping* of *coal* is various, ſometimes greater and ſometimes leſs, ſometimes approaching to a *perpendicular*, cutting the *ſuperficies* almoſt at *right angles*, which ſort they call a *rearing Mine*, whereof I was told there was one at *Biddulph* that runs down *perpendicularly*. Others are again that come ſo near to a *plane* of the *Horizon* that they dip not above one foot in 10, 20 or ſometimes 30 foot: theſe they call *flat Mines* by reaſon of their even and almoſt level courſe. The *open works* at *Wednesbury* ſeem to be of this kind, where there being but little earth lying over the *meaſures* of *coal*, the *Workmen* rid off the earth, and dig the coal under their feet and carry it out in wheel-barrows, there being no need for theſe, of *windleſs*, *roap*, or *carf*, whence theſe ſort of *Coale-works* are commonly call'd *Foot-ridds*, or *Footrills*.

37. Though there are too of theſe, in the third and moſt common ſort of *coal*, that *dips* one foot in three, or one in five, which they call *hanging coal*; but they cannot be made but where the *coal* is found to riſe in proportion to the aſcent of a *Hill*; in which caſe indeed the *Coaliers* can work a *cuniculus* into the ſide of the *Hill*, according to the courſe of the *row* or *ſtreek* of the *coal*, for ſome hundreds of yards in a direct line upon a level, through which they bring forth the coal as eaſily altogether as in a *flat open work*; as they doe at the *Footerill* at *Apedale* belonging to the right Worſhipfull Sr. *John Bowyer* Baronet one of the moſt noble promoters of this *work*, of which more in due place, when I come to treat of the ways of working of *coal*. Yet from that little has been ſaid, 'tis eaſy for the *Reader* to conceive, how preferable theſe are to the o-

ther more common *hanging mines*, in which they are forc't to follow the *coal* to a great depth, to be at the expence and labour of drawing all up by hand, and ſometimes of freeing the *Mine* from water, both which are ſaved in this ſort of *hanging Mine*, as well as in the *flat open works*. And that yet they fall ſhort of the *latter*, in regard it is a long time (if ever) in theſe, before the *Colliers* can reach ſo far forward as to be hinderd in their work either by want of *Air* or any long draught, and ſo are longer workable; whereas the *former* riſeing with the *Hill* (though 'tis true they may work a vaſt way forward) before they want *Air*, yet haveing but one way to work beſide *viz.* by making *ſetings up* with the *croping* of the *coal*, they muſt work out at laſt, and cannot hold on ſo long, as where they may work every way round them, and perhaps further forward than the others can too.

38 However theſe are as preferable to other *hanging Mines*, as thoſe are to the *rearing ones*, which are the worſt of all: the *Colliers* quickly reaching to their utmoſt workable depth every way; though it muſt not be denyed but that the *coal* of theſe, and the common *hanging Mines*, is moſt times more firm, and better for burning, than that of the others; it being certainly true as well in *coal* as *ſtone*, that the deeper it is fetch't the harder and better; and the nearer they come to the ſurface, the ſofter and worſe; till at laſt they are converted, if *ſtone*, moſt commonly to a little better than *ſand*; and if *coal*, to a *ſhale*, *ſmut*, or *droſs*, that will not burn. Which is all I could hear of concerning the *riſe* and *diping* of *coal*; but that ſometimes it will alter its *dip* to a *riſe*, and *crop* to the ſame point of the compaſs it *dipt* before, which the *Workmen* call *leaping*. Nay ſo ſportive ſometimes does *nature* ſeem to be in this matter, that the *coal* which has *cropt* to the ſame point of its firſt *diping*, as in the forementiond example; before it has reach't the ſurface and *cropt* out, has taken another *dip* agreeable to the firſt, and then again another *crop* agreeable to the former; but theſe are but *rarities* not often to be met with.

36. Nor does it *leap* only in the *diping*, but alſo in the *row* or *ſtreek*, as I was inform'd by Mr. *Poole* of *Hardingſwood* a perſon very ſkillfull in theſe matters; which as it leaps the *Workmen* accordingly follow, till (as ſometimes it does) it *leaps* down again into the ſame *range* it lay at firſt. The *rows* of *coal* lye ordinarily one under another at certain diſtances, yet ſeldom ſo near, as that ever any body dug through one *row* down to another, though ſometimes they will draw much nearer together at one place than another, as the ſame Mr. *Poole* informed me they doe at *Hardingſwood*, where the *row* or *ſtreek* lyeing to *North* and *South*, they draw together to the *Northward* and ſpread to the *South* to a good diſtance, and

then

then run *parallel*. Of which there is little more worth notice, but this general *rule* (I think without exception) that to what points ſoever the *riſe* & *dip* direct their courſe, the *row*, ſide *baſſet* or *ſtreek*, lyes quite contrary: as ſuppoſeing a *Coalery dip Eaſt*, the two points that the *dip* and *riſe* reſpect, muſt be *Eaſt* and *Weſt*: whence it neceſſarily follows that the *row* muſt run (as it does here at *Hardingſwood*, about *New-Caſtle*, and as ſome are of opinion, it moſt times does) *North* and *South*, and ſo in all the intermediat *points* of the *compaſs*; as about *Chedle* where the coal *dips* S. W. and by S. or as the *Miners* call it to the two a Clock-Sun, there the *riſe* muſt be to the N. E. and by N. and the *row* or *ſtreek* muſt lye N. W. and by N. and S. E. and by S. the two courſes of the *diping* and *row*, always cuting the *compaſs* into *right angles*, *proxime*; not *Geometrically* ſuch, but ſuch as are paſſable enough, in ſo groſs a body as a *coal-Mine* is.

40. Hitherto we have conſidered this *mineral* of *Coal*, in two of its *dimenſions*, viz its *longitude* and *latitude*; it remains that we now treat of the third, its *profundity*, or thickneſs as it lyes between the *roof* and the *warrant* or *pavement*; which are moſt times *baſs* or *freeſtone* above, and *Ironſton* or *earth*, below; or what ever elſe the ſubſtances be, that lye above the *coal*, or below it. wherein we ſhall give account of the *meaſures*, or *floors*; and the *partings* or *lamings* which the *coal* has in it ſelf; which was the *third* thing to be diſcour ſt on: all *coale-Mines* beſide the ſeparation they have from all other bodies by their *roofs* and *pavements*, haveing divers *partitions* in the body of the *coal* it ſelf, made by thin ſubſtances called *partings* or *lamings*; which are ſometimes no thicker than ½ a *crown* or a *crown*, but ſometimes 1, 2, 3, 4. or 5 inches thick; each diviſion differing ſomewhat in texture and goodneſs: whence amongſt the *Workmen* they obtain different names, which are not the ſame all over the *Countrey*, but vary almoſt in every *Coalery*, though but 3 or 4 miles diſtant. For example at *Wedneſbury*, upon the ſurface they meet firſt with *earth* and *ſtone*, 2. *blew clunch*, and in the 3 place, *coale*. which they divide into an *upper* and *nether coal*: in the *upper coal* there are the following *diviſions*, with their reſpective *depths*, and different *denominations*.

1. The *top* or *roof floor*, 4 foot thick.
2. The *overſlipper floor*, 2 foot.
3. The *gay floor*, 2 foot.
4. The *Lam-floor*, 2 foot.
5. The *Kit floor*, 1 foot thick.
6. The *bench floor*, 2 foot and ½
7. The *ſpring floor*, 1. foot.
8. the *Lower ſlipper Floor*, 2 foot and ½

then a *bat* between 1 and 3 yards thick, which being paſt they come next to the *nether coal*, wherein there are the like *diviſions*, with their reſpective *depths*, and different *names*.

1. The *ſlip floor*, 1. foot.
2. The *lam floor*, 2 foot.
3. The *Oary floor*, 1 foot.
4. The *bench floor*, 1 foot.
5. The *ſpring Floor*, 2 foot.
6. The *ſlipper Floor*, 2 foot.

between every one of which *floors*, both in the *upper* and *nether coal*, there are ſubſtances call'd *partings* of the thickneſs above mention'd, of conſiſtence between an *earth* and a *coal*, or ſoft *bat*, then below the *nether coal* before they come to the *ironſtone*, they have

1. *Earth*, 1. foot.
2. The *Mee Floor*, 1 foot.
3. *Bat*, 1 foot and ½.
4. The *Omfry floor*, 2 foot, and ½.
5. *Ironſtone Earths*, of divers thickneſſes.
6. *Iron ſtone*.

In all from the ſurface 22 different *partitions*: whence it appears as was hinted. in *Oxfordſhire*[i], how much the earth here, as alſo in the following inſtances, ſeems to be of a *bulbous* nature; ſeveral folds of divers conſiſtencies ſtill including one another, after the manner of the coats of a *pearl*, or an *onyon*.

41. At *Amblecot* in this *County* where the coal lyes deep, they have firſt the *top earth*, 7 yards thick. 2 a *rock* of 14 yards. 3 an earth called *blew-clunch*, 3 yards. 4 ſtones parted with earth, call'd the *three frogs*. 5 *catch-earth*, 1 yard thick, mixt with *wild Iron-ſtone*, which covers or lyes upon

1. The *white*, or *top coal*.
2. *Heath*, or *tough coal*.
3. *Fine coal*, or *ſea coal*.
4. The *veins*.
5. The *long coal*.
6. *Rough coal*.
7. *Spin coal*.
8. Top of the *ſuder height*.
9. *Bottom Bench*.
10. *Back-ſtone*.
11. *Iron-ſtone*, 3 yards thick earth and all.
12. *Heathen coal*.

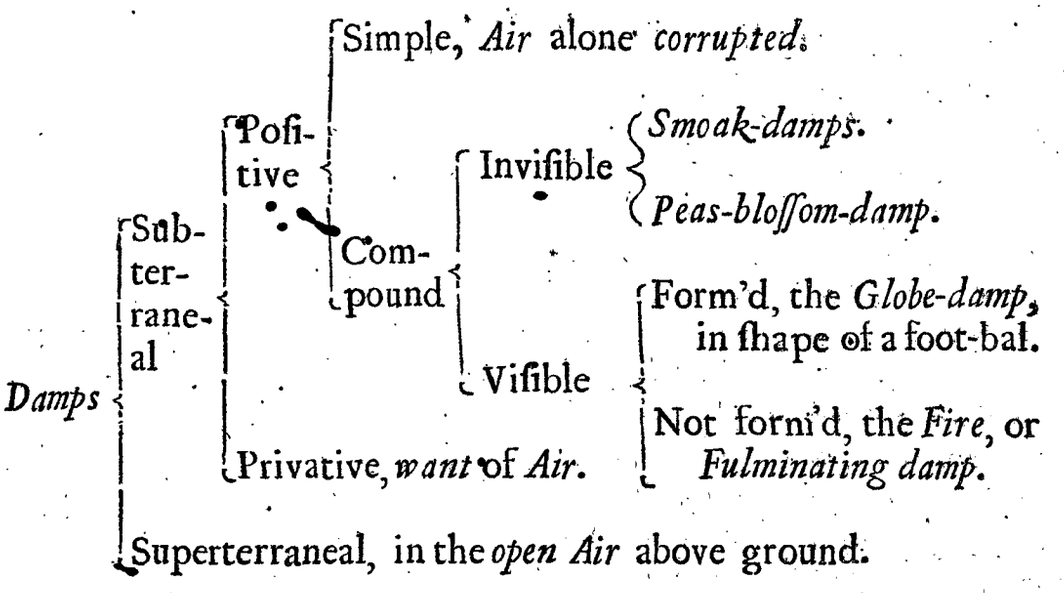
between every one of which *meaſures* of coal, lyes a *laming* or *parting* of various thickneſſes. About *Dudley* as I find it in the *Metallum Martis* of *Dud. Dudley* Eſq[k]; the three uppermoſt *meaſures*, are call'd the *white meaſures*, from the white Arſenical ſubſtance contain'd in them. 4. the *ſhoulder coal*. 5 the *toe caol*. 6 the *foot coal*. 7 the *yard coal*. 8. the *ſlipper coal*. 9 the *ſawyer coal*. 10 the *friſley coal*, all which 10 *meaſure* of coal make up one with another 10 yards in thickneſs. Next them lye the ſeverall *meaſures* of *Ironſtone*; and

[i] *Nat. Hiſt. of Oxfordſh.* chap. 3. §. 14. [k] *Metallum Martis* p. 38.

then

then coal again 2 yards thick, call'd the *bottom*, or *heathen coal*. Theſe if they lye cloſe & firm together, as generally they doe in this *County*, and the *coal* it ſelf and *partings*, but tolerably clear of the *Pyrites*, and *arſenical* mixtures, are workt ſo much the more free from danger: not only upon account that if the *coal* be full of *rifts*, it is ſo much the more apt to colt in upon the Workmen, but from the natural fitneſs that ſuch *clefts* have to admit either corrupted Air, or the poyſonous vapours of ſuch *minerals*; mortal to all *Animals* (except the *Rat*) which they call.

42. *Damps*, the fourth thing promiſed to be treated on relating to this *mineral*, which though they happen not ſo frequently in this *County*, as in ſome others, by reaſon (as I ſayd) of the firmneſs and cloſeneſs of the *meaſures* of moſt *coal* there; yet becauſe they doe ſometimes fall out, and the knowledg of the means whereby they ſeem to be occaſion'd, may not perhaps be thought leſs profitable to the *Philoſopher*, than the cure of them to the *Collier*: I have thought fit to give ſome account of all the *Species* of them I have yet heard of, with their reſpective *Cures*. The *Species* of them naturally divide themſelves into.



All which, whether *ſuper* or *ſubterraneal*, I take in general to proceed from ſtagnations in the ſubterranel Vaults of the Earth, for want of due Ventilations, and commerce between the *inferior* and *ſuperior* Air. The *material* cauſes 'tis true may be various, either ſimple or compound: as the meer corruption of the ſimple Air alone upon a long ſtagnation in the Coal-rooms, and the rifts and clefts of the rock of coal it ſelf, may be its *material* cauſe indeed, but the *cauſa ſine qua non* of ſuch a damp, I take to be the want of motion in thoſe cavities, without which, the *Air* would never have corrupted; no more than *water* which never corrupts till it ſtag-

nates, when indeed like the *Air* it becomes poyſonous, though poſſibly not to that degree, the *Air* being a body much finer, and conveyed to the more tender parts of the body.

43. Whence it is that in the old *works*, wherein there has been no digging for a long time, no laveing, drawing, or pumping of water, all which keep the *Air* in motion, and the *water* from canckering, theſe *damps* are moſt frequent and moſt dangerous. Whence it is too that the *Works* where the bed of coal is thin, and admits of but few or no ſuch rifts or clefts for the *Air* to ſtagnat or corrupt in, are ſeldom or never troubled with them. Upon which account 'tis likewiſe that though a bed of coal have many of theſe rifts, and large ones too; yet as long as there is a profluence of *water* through them, there is no danger of their entertaining ſuch *damps*; which as ſoon as made dry by a *Sough* or *free-Level*, the ſame *Mine* ſhall become much more lyable to them; the wholſom *Air* that was in them whilſt kept in motion by the *flux* of the *water* (having little or no communication with that above ground) now ſtagnating and corrupting to that degree, that it not only extinguiſhes the glowing heat of coales, and the flame of candles, torches &c. but the *flammula vitæ* too in moſt living creatures, ſo that the *Animal* which reſpires it, ſome times expires with it too. And as it is in *ſimple damps* made out of corrupted *Air* only, ſo it is in the compound ones of one or more *minerals*, whether viſible or inviſible; whether ariſeing from the *ſmoak* of *coale* it ſelfe, or as ſome will have one of them, from the *ſcent* of *vegetables*, or 2 from the ſteams of the *Workmens* breath, and ſweat of their bodies, together with the ſmoak of the candles they work by; or 3 from ſulphureous, arſenical, nitrous, or other ſuch *mineral* ſteams that may be incident to *Coalworks*: for to all theſe they aſcribe a particular ſort of *Damp*.

44. The firſt ſort whereof, which ariſes from the *ſmoak* of *coal* it ſelf, is ſaid to happen only in ſuch *grooves* where they make uſe of great fires to ſoften the rocks to make them yeild to the pick-Axe, which ſending up with the *ſmoak* a ſulphureous or perhaps an arſenical vapour, in probability may ſo infect the quiet Air in ſuch deep caverns, as to render it unfit for reſpiration: it haveing been long indeed obſerved that ſuch *mines* are ſeldom or never free from *damps*. And of this ſort perhaps are the *damps* of the *coalworks* about *Chedle*; where above the *Mines* they have a rock of a greyiſh colour, call'd *Pox-ſtone*, ſo very hard, that where they doe not luckily meet with a cleft, they are forced to put fire to it, which in ſome time will make it flaw, or at leaſt ſo ſoften it, that the pick-axes will enter it, which otherwiſe would not work away ſo much in a day, as will fill a hat. And yet theſe *damps* are neither viſible nor noiſome, nor will they take fire, but are ſo groſs & moiſt that they extinguiſh

it

it & are ſuddenly mortal. Nor is the *peas bloſſom damp* (whereof we have an account from the learned *Martin Liſter* Phyſitian at *York*[l]) either viſible or noiſom, it being ſo call'd, as they ſay, becauſe it ſmells like the *bloſſoms* of *peas*, though they fancy it proceeds from the multitude of red *trifoyle* flowers, with which the Lime ſtone meddows of the *Peak* (where they have this ſort of damp) doe much abound: and as it is not noiſom, ſo neither was it ever heard that this was mortal to the *Workmen*, the ſcent perhaps freeing them from the danger of a ſurprize. Of this ſort I enquired in the eaſt part of *Staffordſhire*, where the *Moore-lands* bound upon the *Peak-Country* of *Darbyſhire*, and found it not only there, but as far as I could learn, to be the moſt common damp in the Country, it making their candles firſt to diminiſh, to burn round, and at length to goe out, perfuming the *Stauls* at the ſame time with a faint ſweet ſmell, as thoſe in *Darbyſhire* doe, only with this difference, that here they are ſaid to be ſometimes viſible, ſhewing like a thin ſmoak, which may be ſeen not only in the *grooves*, but fuming out at the top of the pit. But here they are wiſer (where they goe for their coal 40 or 50 yards deep, and have no ſuch thing as *trefoil*; for many miles, and yet have this damp) than to think it proceeds either from *peas* or *trefoil*; it being rather apprehended to ariſe from the *Workmens* breath and ſweat, mixt with the ſteams of the golden *Marchaſite* or braſs lumps, than any thing elſe.

45. Not much unlike that (only in its fatality) we call the *Globe-damp*, thought to be compounded of the Workmens breath &c. and ſweat of their bodies, together with the ſmoak of the candles they work by, which aſcending to the uppermoſt parts of the *grooves*, there condenſe ſo much, that they become *viſible* in the form and bigneſs of a *foot ball*, ſeeming to be cover'd with a ſkin, of of the thickneſs and colour of a *Cobweb*. Theſe if by any caſualty they come to be broken, they immediatly diſperſe themſelves, and ſuffocat all the company, being altogether as mortal though not ſo violent, as the *fulminating damps* mention'd by the ſame worthy Gent. and the ingenious Mr. *Jeſſop* of *Broomhall* in *Yorkſh*: to have happen'd not long ſince at *Haſle-berg-hills*, and at *Wingerſworth* within two miles of *Cheſterfield* An. 1675[m]. where the vapours takeing fire at the candles of the *Workmen*, they found themſelves preſently inviron'd with flames, their faces, hands, hair, and cloaths in great part, being very much burnt, and one of them having his armes and leggs broken, and the reſt of his body ſtrangely diſtorted: the now enflamed *damp* of one of them goeing forth of the mouth of the pit like a clap of *Thunder*, ſhooting off the *Turn* or

[l] *Philoſoph. Tranſact.* Numb. 117. [m] *Philoſoph. Tranſact.* Numb. 117. and 119.

Windeleſs,

Windeleſs, and ſhakeing the very earth ſo much, that a *Workman* in another *Bink* hard by, fear'd the roof would have fallen in upon Him and buryed Him. The ingenious Mr *Beaumont* tells us they have this ſort of *Damp* too, in ſome *Coal-works* bordering upon *Mendip hills* [n], and that in the moſt Eaſterly ones of them, they are ſo very frequent, that ſcarce a pit fails of them, many Men of late years having been there kill'd, many others lam'd, and a multitude burnt: many having been blown up at the *works* mouth, and the *turn beam* which hangs over the ſhaft, thrown off the frame by the force of it. It is alſo ſaid to be in *Scotland* by Mr. *Geo. Sinclar* in a land call'd *Werdy*, Weſt of *Leith* [o]; which they there from its effects (that are very much like ours) are pleaſe'd to call *Wild-fire*, thinking it to proceed from a fat ſort of coal, wherein there is a certain fire reſembling an *Ignis fatuus*, which even in the day time is ſometimes ſeen in the *Coalworks* in little holes ſhining like kindled *ſulphur*, which uniting in the night when the *workmen* are gon home, if it meet with any fire at their return, it breaks out which ſuch violence that it kills whomſoever it finds in its way.

46. Yet neither of theſe were comparably ſtrange to the *fire-damp* that happend at *Moſtyn* in *Flintſhire* in the *Coalworks* there, belongeing to the right Worſhipfull Sr. *Roger Moſtyn* Kt. *Lord* of that *Manor* [p], in the ſame year with that at *Wingerſworth*; which upon making a *Witchet*, for drawing down the *Spring* that hinder'd their further wining of Coal, as ſoon as they were ſcanted of *Air*, the *fire-damp* appear'd in the creviſſes or ſlits of the coal, (where water had been before) in a ſmall blewiſh flame, which whil'ſt the *Colliers* continued their work, was not ſo troubleſom, as upon the intermiſſion of 48 hours, within which time it got ſo much ſtrength, that the *Workmen* looking into the Pit, could ſee it ſhooting from ſide to ſide like ſword blades, croſs one another, ſo that none durſt venture to go downe into it. Upon this they took a pole and bound candles to it, which they no ſooner put over the Eye of the pit, but the *Damp* would fly up at them with a long ſharp flame, and put them out, leaving a foul ill ſcented ſmoak behind it. But finding this would not doe, they tyed many candles to the end of a hook faſtend to a roap, and lowerd them down a little way into the pit, when up came the *damp* immediatly, and blew them all out, burnt their hair, beards, and clothes, ſtruck down one of them, in the mean time making a noiſe like the roaring of a *Bull*, but louder, leaving a ſtink behind it worſe than the former; ſo heating the *water* that though drawn out of another diſtant pit, it was *blood-warm* at leaſt. After 3 days ceſſation more, the *Steward* going down

[n] *Philoſoph. Collect.* Numb. 1. [o] *G. Sinclar's Miſcellan. Obſerv.* p. 292. 293. [p] *Philoſoph. Tranſact.* Num. 136.

with

with ſome others to contrive conveyance of *Air*, one of them unadviſedly puting his candle over the Eye of the pit, the *damp* immediatly fired at it, burnt and tore their clothes from their backs, and flew to and fro all over the hollows with a great roaring; carrying moſt of the Men 15 or 16 yards from their firſt ſtation, and one of them out of the pits Eye above 30 yards high, with a noiſe like a *Cannon*, only ſomewhat ſhriller, which was heard no leſs than 15 miles off: it alſo forcibly drove up the buckets and rope, with the Trunk or barrel that wound them up, of a 1000 weight, and tore it to pieces, though faſten'd to a ſtrong frame with locks and bolts, and bound about with Iron.

47. What ſhould be the *material cauſes* of ſuch prodigious effects as theſe, though it be hard to determin, yet I think I may be poſitive that the cauſe aſſigned by Mr. *Geo Sinclar* is inſufficient[q], though it may indeed be allowed to be a ſocial cauſe: the oylineſs and fatneſs of the coal may be neceſſary indeed for its ſo quik takeing fire, but this will not account for its violence and noiſe: there muſt therefore certanly be ſomewhat of *Niter*, joyn'd with the *bitumen* and *ſulphur* in the coal, to perform this feat. That *bitumen* muſt be a concurrent cauſe of ſuch *damps*, I take to be evident indeed from hence, that in the relation at large of the *fire damp* above, it is ſaid that it would play upon the ſurface of the water of a *rainbow* colour; and that *Sulphur* muſt alſo be an ingredient, I take to be as plain, for that in the ſame relation, it is expreſsly ſaid, that in working the *rock* of coal 5 yards thick, when they came near the bottom, where the water was not mixt with *ſulphureous* and *braſſy Metalls*, the *fire-damp* was neither ſeen or heard of; and that *Niter* muſt alſo have a ſhare in ſuch dreadfull *Scenes* as theſe, I take to be as manifeſt as the facts themſelves, ſince no ſuch exploſions can be made without it, and that the ſmoak that follows the fireing ſuch *damps*, is on all hands confeſt to have the ſmell and colour of *Gunpowder*. But of this matter further, when I come to conſider, how it comes to paſs that ſo many of the *coal-pits* take fire of themſelves.

48. There is another ſort of *damp* they call *want* of *Air*. i. e. want of Air ſufficient for the breathing of *Animals*, and burning of *Candles*. This ſort of *damp* (improperly ſo call'd) is that they commonly meet with in long *Soughs* for conveyance of water from the coale; or when to avoid charge they run in their work as far underground as poſſible, for wining of coal, without leting down a new ſhaft. The cauſe of which ſort of *damp* is cetainly nothing elſe, but the want of communication with the *Air* above ground, it being found by experience that the further a Man goes, into one of theſe *coal-*

[q] *G. Sinclar's Miſcellan. Obſerv.* p. 293.

levels, the flame of his candle will gradually grow leſs and leſs, till it goes quite out, and his difficulty of breathing greater and greater, till he cannot breathe at all, *& vice verſa* in his return. And ſo I found it in my entrance into the above mention'd *Footerill* at *Apedale*, where before we came 200 yards into it, 2 of the 3 candles I had in with me, went quite out, and the third was juſt expiring, in ſo much that I was forc't to make a retreat. This ſort of *damp* is nothing ſo dangerous as ſome of the former, becauſe not ſurpriſing, but comeing ſo gradually, that a man may releive Himſelf at pleaſure, though it be true enough too, that this will kill *Animals*, as well as extinguiſh *coales* or *candles*, if they be far enough removed from the *Air* above ground, and continue long enough there.

49. And theſe ſeven (including one that's to follow) are all the *Species* of *damps* I have hitherto met with, which as ſo many *diſeaſes*, have their reſpective *cures*, known by moſt *Coalyers*: amongſt which that of the firſt, or *ſmothering damp*, is the moſt difficult of any, it being ſudden and ſurpriſing, comeing upon them unawares when they little think on't, and then too not always equally pernicious, the uncertainty whereof the moſt *ſagacious Workmen* ſay depends upon the *Wind*; which if it ſit toward the *face* of the *work* (as they call it) there is no danger, the *ſubterraneal Air* complying with that above, and by this means rather preſſing the *corrupted Air* in the rifts and clefts, further into the *coal-Wall*, then bringing it forth: Whereas if it ſit toward the *old Waſts*, the *Air* in the *coal-rooms* alſo preſſes that way, and as it were leads the *corrupted Air* forth, every thing naturally moving that way, where there is the leaſt reſiſtance. And therefore the *prudent Coalyer* that knows his work lyable to theſe inconveniencies, always minds the *Wind*, which is the only way they have to avoid this ſort of *damp*. The ſecond ſort of damp occaſion'd by *ſmoak*, they diſpel either by *water*, where they have no *Air pits*, and in winter time; but cheifly by *fire*, which they let down in an *Iron cradle*, they call their *Lamp*, into the ſhaft or *by pit* next to that they intend to work, which making a great draught of *Air* from the bottom of the works, the *ſmoak-damp* muſt neceſſarily come away, and *freſh Air* from above come down the other pit, where the *Workmen* went down, and the Coal is drawn forth. Which very way they uſe about *Chedle*, and 'tis a ſecure one too, but very chargeable; the charge of one of theſe ſhafts, by reaſon ſometimes of the hardneſs of the rocks, vaſtneſs of the depth, drawing water &c. often equalling, if not exceeding the ordinary charge of the whole *Work*: to

remedy

remedy which, I think the expedient diviſed and practiſed about *Luyck* or *Leigh*, communicated to the *Royal Society* by Sr *Robert Murray*, ſeems preferable to all others, for efficacy, eaſe, and cheapneſs[r].

50. As for the *peas bloſſom damp*, the ſcent moſt times frees them from danger of a ſurpriſe, which 'tis likely indeed is the occaſion (more than the innocency of the thing) we ſeldom hear that this is *mortal:* but if the Workmen at any time through too much raſhneſs, do happen to be ſtriken with it, they preſently bring them up into the open Air, dig a hole in the ground, and lay them flat upon their belleys, with their faces in the hole, which (if not too far gone) infallibly recovers them. And for the *peſtilential damp* that appears in the roofs of the *coal-works* in form of a *foot ball*, Mr *Liſter*[s] tells us they have a way by the help of a ſtick and a long roap, of breaking it at a diſtance; which done, they purify the place well by fire, and then enter it again without much ſcruple. Much after the ſame manner as they alſo avoid the *fire* or *fulminating damp*, which ſays Mr *Sinclar*[t], in *Scotland* is prevented by a perſon that enters before the *Workmen*, who being cover'd with wet *ſack cloath*, when He comes near the *coal-wall* where the fire is feared, He creepeth on his belly with a long pole before him, having a lighted candle on the top on't, with whoſe flame the *wild-fire* meeting, it breaketh with violence, and runing along the roof, goeth out with a noiſe at the mouth of the *ſink*; the perſon that gave fire eſcaping by creeping on the ground, and keeping his face cloſe to it, till it be over paſt. Iuſt as they did at firſt with the *fire damp* at *Moſtyn*[v], where the workmen every morning before they went down into the pit, uſed to ſend a *reſolute Coalyer* before, whoſe manner was to put on the *worſt raggs* He had and wet them in water, and as ſoon as He came within danger of it, He fell groveling down upon his belly, and went in that manner forward, holding in one hand a long rod or pole to which he tyed candles burning, & reached them by degrees towards it, then the *damp* would fly at them, and if it miſt of puting them out, it would quench it ſelf with a blaſt, leaving a noiſom ill ſcented ſmoak behind it.

51. The *privative damp* or *want* of *Air*, is beſt cured the ſame way the *ſmoaky damp* is, by ſetting down a ſhaft to the *adit*, as ſoon as the candles begin to burn orbicular and to leſſen, and the *Workman* is any thing ſenſible of a difficulty of breathing; which infallibly cures it. And theſe are the peculiar *remedies* for each reſpective *damp*, moſt whereof may plainly be reduced to *motion*,

[r] *Philoſoph. Tranſact.* Num. 5. [s] *Ibid.* Num. 117. [t] G. *Sinclar's Miſcellan. Obſerv.* p. 294. [u] *Philoſoph. Tranſact.* Num. 136.

which I take to be the *catholic remedy* of all *damps*, which confirms me in my firſt opinion that the *cauſa ſine qua non* of all *damps*, is want of motion: for come they either from *corruption* of *Air* alone; from *ſmoak*; from the *ſcent* of *vegetables*; from the *ſweat* or *breath* of *Mens* bodies; from the ſteams of noxious *minerals* &c. though never ſo mortal; or from *want* of *Air*; yet grant but a *circulation* of *Air* in the *coal-chamber*, or let the *waters* that commonly annoy ſuch *Mines*, be drawn thence, not by a *Sough*, or *free natural courſe*, but by *force*, as by laving, buckets, pumps &c. either of them ſhall be ſo broken, diſperſt, and at length gradually brought (with the motion of all other things that way) through the *Eye* of the Pit into the open *Air*, that they ſhall have little or nothing of the effect, which if ſuffer'd to unite (through ceſſation of labour or otherwiſe) they would certainly have. Whence it is that *Coal-works* that are wet, and always require a forcible drain; are much more wholſom, than thoſe made dry, by a free courſe of water, as by a *Sough*, which by a conſtant unforc't deſcent, quickly exhauſts the rifts of a *coal-work*, and fits them for the reception of *corruptible Air*. Whence 'tis alſo that in *Mines* not drain'd by a *Sough*, when the *Springs* are *low*, and fill not up the paſſages in the coal, nor require ſo prepetual and forcible a *drain* as they uſe to doe; that then, at that time of the year, at the latter end of *Summer*, the *coal-works* are moſt lyable to poyſonous *damps*, that the *Air* ſtagnates in the void ſpaces and corrupts, and is quietly impregnated with noxious *mineral* ſteams.

52. Which are ſometimes ſo very ſtrong, that they force their way through the *pores* of the *earth*, where there hath never been any *Sough* or *ſhaft* ſet down to give them vent, and are very noiſom though in the open *Air* above ground, which may paſs I think for a ſeventh ſort of *damp*, though the ſame materially with ſome of the former: whereof there are two manifeſt *inſtances* in this *Conny*, near the ſame place; one, under the bank of the South ſide of *Tettenhall* wood, where paſſengers ſometimes in mornings and evenings, meet with a very offenſive troubleſom *damp*, of which they can give no account, which yet no queſtion muſt come from ſome ſuch *principles* as were the cauſes of the fore-mention'd *ſubterraneal damps*, though I have not heard that any met with here, have proved mortal, as another of this kind (for I cannot imagin it any think elſe) which in the year 1671 in a houſe in *Tettenhall*, ſtruck 5 men and no more, of 200 that were then preſent at the *monthly meeting* of *Juſtices*, whereof 3 dyed quickly after, the other two recoverd in ſome meaſure, but are ſtill troubled with *vertigo's* or diſyneſs in the head, which I take to be ſome remains of the firſt *poiſon*. But how it ſhould affect

theſe

theſe 5 and no more, in ſo great a crowd, is hard to determin, unleſs we may think that it ſhot like a ray of light or *Sun-bean* through a cloud, and ſo only ſtruck thoſe five within its narrow compaſs: which fancy of mine (to call it no more) I am the more willing to favour, becauſe the *fire-damp* at *Moſtyn*, it ſeems affected that *figure*; it being ſaid to ſhoot from one ſide of the pit to the other, like ſword blades, croſs one another; and that it would fly up at a candle in a long ſharp flame[w].

53. Theſe things being premiſed, an anſwer to the *queſtion* how it comes to paſs that ſo many of the *coal pits* take fire, which was the fift thing to be conſider'd, is eaſily had. For if it be true (as it ſeems to be) what *Cæſalpinus* relates concerning *Bitumen*, *Peculiare eſt in bitumine accendi aqua*[x]; which *Pliny* alſo aſſerts of the *Thracian* ſtone[y], by ſome tranſlated *pit-coal*; and that the *fire-damp* at *Moſtyn* did appear in the watery creviſces of the rocks, and ſhine upon the ſurface of the water in the bottom of the pit, of a rainbow colour; if too the ſame *fire-damp* were found only where the water was mixt with *ſulphureous* and *braſſy Metalls*, and that theſe *ſubterraneal fires* were found actually *kindled* without any co-operation of *Man*[z], as Mr. *Geo. Sinclar* alſo aſſerts they are in like manner found in ſome cole mines in *Scotland*[a], and as Mr. *Beaumont* owns he heard one *Colemine* did, in or near *Mendip*[b]; to which add that it has always been obſerv'd, that *heat* and *moiſture*, doe highly promote all ſorts of *damps*: All theſe things (I ſay) being put together, what can there elſe be concluded but that ſome *Coal-pits* may and doe take fire of themſelves; as 'tis unanimouſly agree'd they doe at *Wednesbury* (where the *coal-works* now on fire take up eleven Acres of ground) *Coſley*, *Etingsall*, and *Penſnet* in this *County*, as Mr. *Camden* will have it, whereas indeed the place He mentions then on fire[c], was *Broadhurſt* on *Penſnet* in the Pariſh of *Dudley* and *County* of *Worceſter*; where He ſays a *Colepit* was fired by a *Candle* through the negligence of a Groover; and ſo poſſibly it might; but as for the reſt (which are in *Staffordſhire*) 'tis agree'd they all fired natural of themſelves, as they expect the *ſhale* and *ſmall-coal* in the hollows and *deads* of all the old works, will doe and have done, beyond all memory.

54. Which they ſay is occaſion'd by a mixture of the *Laming* (that lyes between the meaſures of the coal) and the *fleck* (more eſpecially when very much mixt with *braſs lumps*) which lying together in the old cancker'd waters of the pits, heat to that degree, that they fire the ſmall coal left there, which continues

w *Ibidem* x *Andr. Cæſalpini de Metallicis* Lib. 1. cap. 31. y *C. Plin. 2di. Nat. Hiſt.* Lib. 33. cap. 5. z *Philoſoph. Tranſact* Num. 136. a *G. Sinclar's Miſcel Obſerv.* p. 293. b *Philoſoph. Collect.* Num. 1. p. 8. c *Camden's Britannia in Staff.*

burning till it's all ſpent, and then goes out of it ſelf as ſoon as it comes to the rock of coal, which if it have no rifts or clefts in it, admits it not: inſomuch that the *inhabitants* of theſe places are not concern'd at it, nor have half the dread upon them for it, that thoſe have that live remote, far enough out of its reach. The Worſhipfull *Dud. Dudley* in his *Metallum Martis*[d] ſays that *ſmall coal* with *ſleck* thrown moiſt together (not mentioning any thing of *Laming*) by reaſon of its ſulphurouſneſs, will doe the ſame thing; which I am inclined to believe ſince I find amongſt Dr. *Powers obſervations* that the *Pyrites aureus* being expoſed to the moiſt Air, or ſprinkled with water, will ſmoak and grow exceeding hot, and if many be laid in a heap and water'd, will turn red hot of themſelves, as He ſays He had ſeen them Himſelf. whereof He acquaints us with a very unhappy example, that fell out at *Ealand* a neighboring *Town* to Him in *Yorkſh.* where one *Wilſon* having piled up many Cartloads of them in a barn of his (for ſome ſecret purpoſe of his owne) the roof being faulty, and admitting rain water to fall copiouſly in amongſt them, they firſt began to ſmoak, and at laſt to take fire and burn like red hot coales, ſo that the *Town* was in an uproar about the quenching of them[e]. Now if the *golden Marchaſit* or *braſs lumps* alone will thus take fire, much more will they ſure when mixt with ſmall coal: whereby as Dr. *Jorden* aſſures us whole heaps of coals mixt with this ſort of *Pyrites* (call'd *metall coals*) have taken fire at *Puddle wharfe* in *London*, and at *New-Caſtle*, and been burnt before their time[f].

55. Whence 'tis plain how likely it is that the Coal pits at *Wedneſbury* &c. take fire of themſelves, in which there is ſo much *Sulphur* which ſublimes by the heat of the fire from the *pyrites* in the *coal*, that there lyes great quantities of it upon the burnt ſurface of the earth a fire underneath, in its true colour fixt to the *Cinders* and *poxſtone*, all ſtriated, I ſuppoſe by the aſcent of the heat and ſmoak: out of which, if not already ſo much burnt, as to be become effete, poſſibly ſome advantage might be made, either by caſting it, as it is into rolls or *Magdaleons*, by makeing great quantities of *flowers* of *brimſtone*, or oile of *Sulphur per Campanam*: with which, where there is mixt a due proportion of *Niter*, there is the true *natural Gunpowder* in all probability produced, that when fir'd, has much greater force and noiſe than the *artificial*: for 'tis this no queſtion when fir'd, and pent up within the earth, that puts it into thoſe convulſions we call *Earthquakes*; ſuch as happen'd in this *County* in the *Chriſtmaſs* time An. 1677 about 11

[d] *Metall. Martis* p. 37. [e] *Dr. Power's Microſcop. Obſerv.* p. 62, 63. [f] *Jorden of Mineral waters chap.* 14 *in fine.*

at

at night which came with a noiſe plainly to be heard before the ſhaking: it was conſiderable about *Willenhall* near *Wolverhampton*, but very ſhort, giving the earth but one ſhock, and moving (as they thought by the noiſe) from *South* to *North*. The ſame *Earthquake* was felt alſo at *Hanbury* upon the confines of *Darbyſhire*, but as Mr. *Villiers* of that *Town*, a ſober grave *Gent.* aſſured me, it happen'd there about 8 in the evening, which argues its motion muſt be from *Eaſt* to *Weſt*, and very ſlow; or elſe not the ſame *earthquake*; neither whereof can certainly be coucluded, for that no body knows in what *Mæanders*, the caverns of the earth run; nor with what obſtacles it might meet by the way, to retard and prolong the time of its motion.

56. *Nov.* 4. 1678 there happend another *Earthquake* in this *County*, it was moſt dreadfull of any place I could hear of, about *Brewood*, whither it came with a noiſe, not like a clap, but a flat rumbleing diſtant *Thunder*, yet ſo great that it wakened people in their beds; at 11 a clock by the night, about what time it began, and continued till towards *two* in the morning; the earth moving very ſenſibly three times, at about ½ an hours diſtance, each motion from the other. The night following there happen'd another, but not ſo great, yet not without noiſe, as I ſuppoſe very few doe; if any, it muſt be where the *fire damp* kindles ſo deep in the earth, that the exploſion cannot be heard through ſo denſe a body as it may be thence to the *ſuperficies*, though the convulſion may be ſenſible. That which was felt at *Oxon*: about 7 in the morning *Sept*: 17. 1683, was alſo accompanied with a noiſe like diſtant *Thunder*, the murmuring ſound (as it appeard to me) preceding the ſhock about two *Seconds* of time. *Octob*: 9th in the ſame year, about eleven at night there happen'd another in *Stafford-ſhire* and all the adjoyning *Counties*, which as I have it from good hands, was not without a *nciſe* neither; whence I conclude that few or none happen without, and that all of them have their *origin* from the kindling and exploſion of *fire-damps*; though I doe not remember I muſt confeſs that the *earthquake* at *Buſhbury*, that fell out there (they will tell you upon opening the *Friars* Tomb) within the memory of man (for I ſpake with one that remember'd it well) had any that attended it, though it was ſo conſiderable as to make the pewter clatter in their houſes, and the great pot they boyled their meat in, at *Buſhbury* hall, to leap up from the ground; but this indeed needed not any great *exploſion*, for it was ſo very peculiar, that it did not extend beyond the bounds of the pariſh; nor was it valuable any where, but about the *Church*.

57. If

57. If it be objected that *Air* is ſo neceſſary to the being and duration of *fire*, that a ſubterraneal one, though actually kindled, could hardly continue long without extinction, and ſurely much leſs be kindled there. And ſecondly that if theſe *noiſes* which attend *earthquakes*, proceed from the kindling and exploſion of *natural Gunpowder* made up of *coal*, *Sulphur*, and *niter*, as the *artificial* is; we ſhould find it ſome where, or ſome time or other, break forth of the earth and ſhew it ſelf, which yet we hear little or nothing of. And thirdly that *earthquakes* many times happen, where one at leaſt, if not more of theſe materials, were never known to be; as at *Oxford* above mention'd; and that therefore in ſuch places however, it is by no means likely, that *earthquakes* ſhould proceed from the aſſigned cauſes. To the firſt I anſwer, that *Air* is ſo unneceſſary to that ſort of fire kindled from the principles, and in the circumſtances abovemention'd, that we find it in the relation of the *fire damps* at *Moſtyn*, they never began to appear till the *Workmen* perceiv'd a *want* of *Air*, that being eſteemed a great nouriſher, as the *immiſſion* of *Air*, from above, a deſtroyer of them [g]. Which may give an account in ſome meaſure for the *perpetual Lamps* of the *ancients* ſhut cloſe up in *Tombs* or other *ſubterraneal Cells*, which could have no communication with *external Air*, and were preſerved by it, the *oile* perhaps being ſomewhat of this kind, all *Hiſtories* agreeing that they were all extinguiſh't preſently upon the leaſt *immiſſion* of *external Air*. Not to mention that our *hot Bathes* may be alſo accounted for, this way, this ſort of fire heating water as well as any other, as was plain at *Moſtyn*, and as it is at *Mount Hecla* or *Heckleſield* in the cold *Country* of *Ice-land*, which ſometimes throws forth ſcolding hot water, and from whence 'tis they have ſprings ſo *hot* in that *Country*, that in a quarter of an hour they will ſufficiently boyle great pieces of beef [h].

58. And to the ſecond it may be replyed, that though in moſt *cold regions*, where the Earth is not ſo plentifully ſtored with *Minerals* as 'tis in the *hot*; and where the pores of it are ſhut in the time of earthquakes, which commonly happen here toward winter, and moſt commonly upon froſts, theſe fires ſeldom or never break out, but in all probability are extinguiſh't after ſome time with their owne filthy ſmoak: yet that in *forraigne Countreys* of a warmer *Climat*, where the earth is commonly repleniſh't with *Minerals*, and the pores of it always open with *heat*; there is nothing a more certain attendant of an *earthquake*, than an eruption of fire ſomewhere within its verge. The *earthquakes* that ſo fre-

[g] *Philoſoph. Tranſact.* Numb. 136. p. 897. and 898. [h] *Mr Collins's account of Ice-land.* p. 78.

quently

quently (that I say not always) precede the *eruptions* of *flaming Mountains*, make good this; whereof *Pliny* who was of this opinion, and compares *Earthquakes* to *thunder* [i], gives us an extraordinary instance which fell out near *Rome*, *Lucius Martius* and *Sex. Julius* being *Consuls*; when two *Mountains* were seen to assault one another with a very great *noise*, smoak and fire issuing from between them at their congress and regress, a multitude of *Roman Knights*, their *servants*, and *Travellers*, looking on the while from the *Æmylian* way [k]. And all *Vulcano's* indeed upon their greatest eruptions have *earthquakes* preceding them, as whoever consults those of *Vesuvius* or *Ætna*, whether ancient or modern, will always find them prefaced with such passages as these; *præcedente horrido terræmotu*: *post ingentes terræ concussiones*: whereof there fell out a very terrible example March 8. 1669, when *Ætna* took fire after a most dreadfull earthquake. [l] The like happen'd not long after in the *Isle de la Palma*, one of the *Canary's* *Nov.* 13. 1677. where about a ½ of an hour before Sun set, an *earthquake* began which continued to the 17th with a thundering noise in the bowels of the earth, more especially in the plain call'd the *Canios*; where, and in divers other places, the earth open'd several *mouthes*, to the number of 18. whence with the same thundering noise, issued *fire* and *smoak*, *melted rocks*, and *fiery stones*, which it threw so high into the *Air*, that the people lost sight of them [m]. Mount *Hecla* too, which is always burning more or less, has also in proportion as constant an *earthquake* attends it, as *Martineir* informs us, who with his *companion* and two *guides* travel'd up it about half a league, when it was reckon'd prety quiet, yet found it then to *tremble* so under their feet, and heard such a strange crashing and *rumbleing* within, that they were glad to get back again as fast as they could, for fear of being swallowed [n]; and if it trembled in this manner in its quietest condition, what must it doe when it burns with its greatest vehemence? when, as we find it in the *Geologia Norwegica*, it makes a terrible rumbleing like loud thunder, whereas in other *Counties* where there is less exuberance of matter, these explosions (which are ratably weaker) must be stricktly pent up to make an *earthquake*, which let loose through any *ductus* into the open *Air*, would cause no such matter, and this I take to be the reason why we have no such *fiery eruptions* upon *earthquakes* here, as they have abroad.

59. Tis true indeed that about *Oxford* we have no such matter as *coal* that yet we know of, and yet have *earthquakes* now and then

[i] *C. Plinii 2di. Hist. Nat.* Lib. 2. cap. 79. [k] *Ibid.* Lib. 2. cap 83. [l] *Lib. Alphons. Borelli de Incendiis Ætnæ* cap. 4. [m] *Lectio Cutler. de potent. restit.* p. 52. 53. [n] *Martineir's Northern voyage* p. 134.

which was the third objection; and is anſwer'd already by Dr. *Power* § 54, where He ſays that the *golden Marchaſit* or *braſs lumps* moiſtned with water, are ſufficient to produce heats and actual fire without *coal*; to which add *niter*, of both. which there is plenty about *Oxford*, and we have ſufficient materials to ſupply for an *earthquake*, and the *noiſe* too, that commonly attends them. Beſide the *pyrites* or *Marchaſits* about *Oxford* lye generally, if not always, in a dark blew clay, which after further concoction of many *Ages* perhaps many come to be *coal*: however as it is, it ſeems to be ſomewhat like the *laming* that lyes between the *meaſures* of *coal*, which according to one opinion § 54 was look't upon as one of the *materials* as productive of *heat* and *fire*, as any of the reſt: which if ſo, this *blew clay* perhaps may ſupply the place of *coal* in the proceſs of *nature* for begetting an *earthquake*, as perfectly and well, as if *coal* were at hand, though I muſt confeſs were there any other circumſtances favorable, this would induce one to think *coal* could not be far off. Which brings me

60. Laſtly, to the *ſignes* whereby they find *coal*, and the methods they uſe in finding and diging them; which though they properly indeed belong to the *Chapter* of *Arts*, yet for the reaſons above mention'd, I ſhall treat of them here. For finding of *coal*, if in a place where never any have bin diſcover'd, they firſt conſult the *ſprings* if any near, to ſee whether they can find any *coal water* i. e. an acid water having a *Car*, or yellow ſediment: above ground they look for a *ſmut* as they call it, i. e. a *friable black earth*: when they meet with either of theſe, they reckon themſelves under circumſtances tolerably good for the finding of *coal*, which prompt them next either to *boar* or *ſink* a *pit*; the former whereof if they think the *coal* lyes ſhallow, is the better of the two; but if it lye deep, it becomes almoſt as expenſive as *ſinking* a *pit*, the drawing the rods of the *Augre* expending very much time, in reguard they are many, and that it muſt be done frequently; beſides its leaving the *Searcher* under great uncertainties, in reſpect of the courſe of the *coal*, the *draining* it, its *goodneſs* and *thickneſs*; all which are very conſiderable in the *ſearch* of *coal*. Whereas by ſinking, all theſe uncertainties are removed, only the *charge* is certain, for that in all *virgin grounds* where the *coal* lyes intire and untouch't, there is always a great *affluence* of *water*, which many times brings the *unfortunat inquiſitor*, not only under a neceſſity of a great expence for *drawing* of *water*, but ſometimes too, to let Himſelf know that the work can never turn to account: However of the two, this is reekon'd the better, for the reaſons above mentiond.

61. As it is alſo where ſearch is made, where *coal* is already known to be, either by their appearing to the day any

where

where, as by *Rivers* ſides, or having been dug not far of: the *ranges* of the *Metalls* already known, and their *diſtances*, with their *diping*, and the *riſe* of *ground* above them, giving directions almoſt infallibly where they ſhalt ſet down their *pit*. For theſe being known, 'tis no great difficulty to judg whereabout they'l *crop* out; that which lyes loweſt, comeing forth furtheſt; and that which uppermoſt, nigheſt to the place foreknown: So that ſuppoſeing the worſt that can befal the *Searcher* in the uſe of this *Method*, that He ſhould find Himſelf miſtaken in ſeting down his Pit, and meet either with a *Metall* that lyes above, or under the *coal*; in the firſt caſe all He has to doe, is to move in proportion ſo much backward, and in the latter ſo much forward, and He ſinks his pit juſt upon it. In finding of *coal* the moſt ſkillfull *Workmen* give much heed to the *roof*, whereby they will not only tell what *mine* they are over, but the quality of the *coal* too, as to its goodneſs or badneſs; a *roof* of looſe *rotten ſtone* without any certain *beding* or *diping*, being a certain *Index* of ill *rotten coal*; as a *firme roof*, *vice verſa*, is of a *good one*.

62. When the *coal* is found, they work it according to the greater or leſſer *diping*: if it be a *rearing mine* or *edg-coal* as ſome call it, cuting the *ſuperficies* of the earth at *right angles*, if yet of a ſufficient thickneſs to be thought worth working at all, they ſink a pit as deep as the water will give leave, and work along the *row* or *ſtreek* as far as they think convenient: if it *riſe* or *crop* with the aſcent of a hill, and is fit for a *footrill*, as at *Apedale*, they follow the *row* or *ſide baſſet* of the *coal*, as far as the *want* of *Air* will permit them, and at due diſtances make *ſetings up* acoording to the *croping* of the *coal*, i. e. as other Coal works are dug with a *ſide dip*, ſo theſe in an *up dip*. The *footrill* at *Apedale* is driven in thus upon a *level* about 200 yards, in which ſpace there are 12 *ſetings* up, haveing *pillars* at each ſide which they call *ribs*, between which they muſt carry up their work, though the *coal* hath *leiths* or *joynts* in it that run otherways, according to which yet they cannot work it as they doe in the *Flat* and *hanging mines*; which they divide into partitions or *wallings* as they call them, more or leſs in number according as the mine *dips*: if but little, which they call a *flat mine*, the *wallings* are ſo many the more, in regard it is workable a great way, before either the *Mine* will *dip* to the *water*, or *crop* to the *graſs*: if a *hanging mine*, ſo many the leſs, in proportion likewiſe to the diping.

63. I went down into one of theſe *hanging mines* at *Hardingſwood* belonging to the aforemention'd Mr. *Poole* of this *County*, where He ſhewed me a *level* of 35 yards of *roach* as it lay in an oblique *diping* line above the water, which came to 35 foot *perpendicular*,

dicular, diping one foot to every yard: in this *Level* He had five *wallings* or *Stauls*, out of which they dug the *coal* in great blocks; between the *wallings* there were *ribbs* left, and paſſages through them called *thurlings*, which give convenience of *Air*, and paſſage for the *coal* out of one *walling* into another, which in all *coal mines* ſtand thick or thin, partly according to the ſubſtance of the *coal*; moſt commonly thiner in the lower *wallings*, which are therefore conſequently wider; aud thicker in the upper *wallings*, which muſt be therefore narrower, the *coal* of the upper *wallings* being generally naſher; *i.e.* ſofter and more friable then that of the lower *wallings*, which are more firme and ſolid: whence they compare the *coal* of the upper *wallings* to bruſh wood, as burning ſwifter, ſweeter, and clear from ſoot; and that of the lower *wallings* to hard wood, as being more ſolid and laſting, though making more ſoot. But in this point they mind not ſo much the *coal* as the *roof*, the *wallings* or *ſtaules* being made narrower or wider, according as that is found better or worſe, which ſometimes being nothing but a *baſs*, full of *joynts*; and perhaps ſoluble in the Air, they are forced then to leave a yard of *coal* that lyes next under it for a *roof*, and make their *wallings* narrow: whereas on the contrary where there is a *ſtrong rock* next the *coal*, and no *baſs*, they will then venture their *roof* ſo far ſometimes as to make their *wallings* 8 or 9 yards wide, which *roof* of *rock* puts me in mind that tis time to ſhut up this tedious diſcourſe of *coal*, and proceed to the ſucceding *Chapter* of *Stone*.

64. But before I enter on it, perhaps it may not be amiſs to add a word or two concerning the Methods they uſe in laying their coales *dry*, when any thing troubled with *water*, which becauſe they are not ſo frequently, or ſo much, as in ſome other *Countrys*, they are not forced upon ſuch variety of expenſive *Engines*. The ordinary ways they uſe are by *Sough* or by *Gin*. The former when they have the advantage of fall of ground enough, which they try by the *Level*, and then either dig a trench open to the ſurface, like a great ditch as deep as the *coale*, or drive in a *cuniculus* about a yard *diameter* to the pavement (if they can) of the loweſt dip, of the loweſt *meaſure* of *coale*, which without more adoe will lay all the *coal* ſo dry, toward the *Crop*, that it may be workt without difficulty. But when they have no fall, they draw it up by *Gin*, which is made either bigger, or leſs, according to the exigence of the work; the leſs they call a *Iack*, which is either turned by *Men*, as requiring leſs ſtrength, or by *Horſes*, according as the *Owner* thinks moſt fit. But the *Gin* is always work't by *Horſes*, which likewiſe is two-fold, either by *chain*, or by *barrells*: the chain is made with leather *ſuckers* upon

it at little diſtances, which bring up water, and diſcharge themſelves into a *trough* ſet near the Eye of the pit, whence tis carryed off by a ſmall trench. The *Gin* by *Barrells*, whereof always one goes up as the other goes downe, will alſo void great quantities of water; provided they be conſtantly followed day and night, elſe upon the leaſt neglect, the water will get ſuch head, that much time will be ſpent before it can be maſter'd again, which *Engines* being ſo common, and ſo eaſy of apprehenſion, as not to deſerve a *Cut*, or the *Readers* view; I have ſaved my ſelf the expence, and Him the trouble, both of the one and th' other.

CHAP. IV.

Of Stones.

1. IN the two preceding *Chapters*, having run through the *Mineralia media*; the *Earths*, *Salts*, *Sulphurs*, and *Bitumens*; the order of *Nature* next requires me to deſcend to the *Stones* and *Metalls*, the two remaining *ſpecies* of the *Mineral Kingdom*, which will be both abſolv'd in this, and the following *Chapter*. How all *ſtones* were chiefly made out of *Salts* with a mixture of *earths* and *ſulphurs*, was ſhewn in generall, in the *Hiſtory* of *Oxfordſhire*[a], I ſhall only add here the particular *Method* nature ſeems to uſe in the production of them, and then conſider the ſeveral *ſpecies* worthy notice in this *County*. It has been an opinion that challenges no great ſeniority, that *Stones* are coagulations of *Salts* and *earths*, which if finely mixt, ſublim'd and percolated by the means of *heat*, and after condenſed by *cold*, make a *tranſparent ſtone*; and if but groſly mixt with little or no percolation, an *opake* one; wherein though I cannot deny but there may be ſome-what of truth, yet I think it will be more particular, and more home to the buſineſs, if we further add, that this *coagulum* or petrification is rather made upon the meeting of the ſolutions of *acid* and *Alcalizat ſalts*; and that theſe doe compound tranſparent, ſemiopake, and opake ſtones, according as they are more or leſs mixt with *ſulphurs*, and *earths*, of different fineneſſes and purifications.

2. And this I take to be very probable, becauſe we know of no *things* in nature that unite ſo ſtrictly as theſe *two* doe, makeing a *coagulum* in bodies that at firſt ſight ſeem very unlikly to performe any ſuch matter; witneſs the *offa alba* of *Helmont*, a thick groſs ſubſtance, far from the nature of a *liquid*, made out of the ſpirits of *wine* and *urin* highly *rectify'd*; and another ſuch like *Offa* made of the ſpirits of *Vitriol* and *Salt*, by a ſolution of *Saturne* made with diſtill'd Vinegar[b]; to which add the *coagulum* made out of equal quantities of ſpirit of *Sal Armeniac* and ſpirit of *Wine* mixt, and ſhaken together in a Viol; and all theſe upon union of the *acids*, *alcali's*, and *ſulphurs*, or whatever other principles they be, that conſtitute theſe bodies. Thus *tranſparent ſtones* having little or nothing of thoſe terreſtrieties the *opake* ones have, ſeem to be made of pure ſolutions of ſuch like *ſalts*, and tranſparent *Sulphurs*, or *Ambers*,

[a] *Nat. Hiſt. of Oxfordſh.* chap. 2. §. 25. [b] *Philoſoph. Tranſact.* Numb. 117. pag. 408.

all

TAB. IX.
ad pag. 151.
To the Worsp.ll the
Generous & much esteemed Gent.
PHILIP FOLEY of
PRESTWOOD Esq.
This 9. Table
Shewing the N. E. Prospect
of PRESTWOOD Hall
as a gratefull remembrance
of his singular Favours
is humbly offer'd
by R. P. LL. D.
Murghers delin. et sculp.

all purifyed by filtrations through the cloſeſt colanders, and then fixt upon meeting. Thus a *calcarious* or *Tartarious Salt* meeting with a pure ſolution of *Sal gemmæ*, and *white-ambrine Sulphur* or *bitumen*, 'tis like produces an *Adamant* or *Diamond*. The ſame *alcali's* meeting with a pure ſolution of *native Cinnaber* make a *Ruby*, with a ſolution of *blew vitriol* (for there is a natural blew Vitriol as well as an artificial) a *Saphir*, with ſolution of *green vitriol* a *Smaragd* or *Emrauld*, with ſolution of *Orpiment* a *Topaz*, and ſo for ſtones of all other intermediat colours, or mixt of theſe in proportion as they partake more or leſs of one or the other. But ſuch ſtones as theſe I ſhall have little occaſion to trouble the *Reader* with in particular, there being but few *tranſparent* found in this *County*; I ſhall therefore in the firſt place conſider the *opake* ones, and eſpecially ſuch firſt as hold any of theſe *principles* more ſignally than others: then 2. ſuch as ſerve to ſupply the *neceſſities* of Mankind: and laſtly ſuch, whether *opake* or *tranſparent*, that ſerve for the ornament or delight, either of his perſon, or buildings.

3. On the banks of the River *Stour* between *Preſtwood* and *Stourton Caſtle* (a place remarkable for the birth of *Cardinal Poole*) now both of them the Seats of the virtuous and much honored *Philip Foley* of *Preſtwood* Eſq; both here repreſented in Proſpect *Tab.* 9. as a gratefull recognition of his eminent favours: On the banks I ſay of that river, about mid-way between the aforeſaid places, I was ſhewn a large rock at the foot of a hill, at which it has been obſerved that birds doe lye frequently pecking and licking it, and 'tis ſuppoſed for the *ſalt* they find in it: that many birds delight in licking of *Salt*, eſpecially pidgeons, is very certain, but that there is any in this *rock* I muſt confeſs I could not find, though I endeavour'd it nicely, perhaps they may rather come for a ſort of *gravel* in this rock, that may be fitter than ordinary for breaking the corn they have eaten, which in ſuch *Animals* as theſe that have no *teeth*, is perform'd in the gizzard by the help of gravel: yet neither can I conclude that there is no *ſalt* in the rock, becauſe I could not taſt it, for I very well know that moſt other *animals* are nicer in their *Senſes* (having no way debauch't them) than *Mankind* is, ſo that nothing hinders but the *birds* may be ſenſible of a *ſalt* in the rock, though I was not: if there be ſuch a *ſalt*, in all probability it muſt be a good *fire-ſtone*, ſuch as they uſe for the *Hearths* of their *Iron furnaces*; and if ſo, were the *Iron-works* at that height in this *Country*, they were formerly, this rock could have never fallen into a better hand, than its preſent *Proprietor*.

4. For there is nothing in nature, except *Talc* and *Amiantus*, that

that ſupports the force of fire equally to *Salts*, whence 'tis that ſome ſorts of ſtones endure fire much better than others, when they are well ſated with *Salts*, and have but little *ſulphur*, and the parts of thoſe *ſalts* well adapted to one another without *cavities*; for wherever there are iuterſtices betwixt the parts, there muſt be *rarefactions* upon the advent of *fire*, whence follows flawing at leaſt, if not flying of the ſtone; neither of which can be endured in a *furnace*. The ſtone moſt prized for this purpoſe, of any I could hear of all over the *County*, is a ſort they dig on *Whiſton moor*, not far from *Chedle*, in the *Moorlands*; and at *Huntington* upon the edg of *Cank-wood*; theſe they trye firſt in their *Forge* fires, to ſee whether they will flaw or fly or no, and if the ſtone of any quarry paſs two or three tryals, they then conclude upon the whole, and take it thencforward for good, without further tryal: which is all concerning it: but that the beſt ſtone for this purpoſe, is generally obſerved to lye in *Clay*; and that if the texture of it happen not to be cloſe and firme, it is apt to run upon *froſts* and *moiſt* weather; of which ſort I take the ſtone to be, call'd *Glum-metall*, about *Bradwall* in the *Moorelands*, which as I was told by the ingenious *Ralph Sneyd* Eſq; though as hard to digg as any rock; yet the Air, rains, and froſts, will mollify it ſo; that it will run as if it were a *natural Lime*, and no queſtion would they uſe it, muſt be good for land. And this brings me next to conſider.

5. The *Limeſtone rocks*, whereof to their great benefit they have plenty enough almoſt in all parts of the *Country*, it being a ſort of ſtone not ſo much uſefull here for their *buildings*, as for *fertilizing* their heathy, gorſy, and broomy lands; for though when burnt, it part with moſt of its *ſulphur*, yet at the ſame time it admits fiery particles, which upon *moiſture*, together with its *ſalt* now clear'd from the bonds of *Sulphur*, it freely diſpenſes to the cold poor ground, giving it at the ſame time *warmth*, and *ſaltneſs*, the cheif principles of vegetation; forceing the ground to exert it ſelf to ſo prodigious a rate (which is its only fault) that it ſometimes beggers it for ever after: wherein they ſay *marling* is to be preferr'd before it, that cheriſhing and improveing the innate ſtrength of the Land, and continuing ſo to doe for a long time; this only hightening the preſent vigour, but preying upon it (like *brandy* upon the *Spirits* of an *Animal*) and quite extinguiſhing it in a little time. However it muſt needs be good for their cold, moiſt, black, bituminous earths; whereof there is great quantities in the *Moors* of this *Country*, which without it would ſcarce produce any thing at all.

6. It is dug in great plenty upon the banks of *Dove*, from *Beresford* downward, and ha's been reputed to give the meddows on that river their great fertility, but I think it can doe but little before 'tis

burnt

burnt, its ſalts being then clog'd and fetter'd with Sulphur, a better and truer cauſe of that fertility having been aſſigned before, Chap. 2. § 2. of this book.

6. At *Waterfall* alſo on this ſide the *Country*, it riſes in *tables* or *flats* about two inches thick, ſo very fine a grain and cloſe texture that it poliſhes like *Marble*, whereof in the *arbours* up and down the *Country* I found tables made of it: but it is ſo far from a wonder that *Lime-ſtone* ſhould be *marble*; that moſt *marble* (that I ſay not all) will burne to *Lime*, and is conſequently a *Limeſtone*, though all *Limeſtone* be not *marble*. They dig *Limeſtone* alſo at *Madeley* on the other ſide the *Moorelands* in the Lordſhip of the Worſhipfull *John Offley* Eſq; beſide good *coal*, and *Marle*, which ſhould have been mention'd before: but the beſt of all is ſaid to be in the Southern parts of the *County*, in *Hurſtfield* within the *Manor* of *Sedgley* belonging to the Honorable *William Ward* Eſq; and in the old *Park* near *Dudley Caſtle* belonging to the right Honorable *Edward* Lord *Ward*; and all about *Walſall*, particularly at *Ruſhall*, in the lands of the learned *Henry Legh* Eſq;

7. Where it lyes in beds for the moſt part *Horizontally*, and is broken up with Iron wedges knockt in at the partitions with great ſledges, and prized up with great *leavers* with rings round them, to ſtay the feet of the *Workmen* who get upon them, whereof ſome weigh at leaſt 150 pounds: Notwithſtanding which vaſt force the *ſtones* will not riſe, unleſs ſoftened by fire, which upon that account they are conſtrain'd to make on it. When they have gotten the *ſtone*, they burn it in oblong pits, made in the ground, about ſeven yards long, 3 wide, and but 6 or 7 foot deep at the *but* of the pit: wherein firſt they lay a little wood or gorſe to keep the *coal* from the ground, which is laid under the *ſtone*, the firſt *ſtratum* but thin, not above 3 inches thick; then a *ſtratum* of *ſtone* about 6 inches deep; the next floor of *coal* they make 10 inches thick, and the layer of *ſtone* above that, 18 inches: the next of *coal* above that, is uſually about a foot thick, and the floor of *ſtone* over it double the thickneſs; then the 4 layer of *coal* is but 10 inches, and the 4 of ſtone but 18; then above all another *ſtratum* of *coal* about 2 or 3 inches, which they cover with *parget* or *mortar*, made with ſlak't lime and water to keep in the heat: the *coal* laid in this manner with the *ſtone* S. S. S. burning it gradually into *Lime* in about a weeks time. Which ſort of *Lime pit* ha's this peculiar convenience above all others I ever yet ſaw, that they can take away the *Lime* that is firſt burnt while the reſt is on fire, and can make up the *but* of the *pit*, whilſt tis yet burning at the *mouth*.

8. Beſide, in this Method and manner of burning of *Limeſtone*,

the *Workmen* ſeem not to run the hazard other *Lime burners* doe, who burn it with wood after the common practiſe of other *Countries*; who if they keep not their fire ſtill forward as they call it, but ſuffer it to ſlacken never ſo little before the *ſtone* is quite calcined, ſhall never after be able to make *Lime* of them at all: for if the *flame* which has once open'd the pores of the *ſtone* be but checkt a little before the work is finiſht, the pores will ſome way or other ſo cloſe themſelves up, and the whole matter ſo ſink into a lump, that twenty times the fewel that would have kept them open, and the maſs of ſtone aſunder, will never recover them ſo as admit the *flame* again, which cannot now riſe amongſt the *ſtones*, there being none of thoſe *interſtices* now left either in the body of the *ſtone* it ſelf, or between them, for it to paſs through as before. Whereas in this way of *Lime burning*, by *ſtratification*, as it ſeems morally impoſſible for the *Workman* to be ſo negligent as to ſlacken a fire which ſtill burns on of it ſelf; ſo it ſeems naturally ſo, that a maſs of *ſtone* ſhould ever ſo fall down into a lump, being thus divided by *coal*, as either way to be render'd uncapable of being made into *Lime*.

9. Next the ſtones holding a ſignal quantity of *Salt*, I proceed to ſuch as have a mixture of *Sulphur*, and ſuch are all that with a ſteel, or by a quick attrition with any other fit body, will ſtrike *fire*, or kindle its parts into *ſparks*, all which by the *Naturaliſts* are aptly enough ſtiled *pyrites*; under which *genus* we may reckon *Sands*, *pebbles*, and *Marchaſits*, of each of which, as many as I find any way remarkable, as breifly as may be. And firſt of *ſands*, which ſays *Ferrante Imperato* are the leaſt form of a ſtone[c]; whereof I met with a ſort at *Bilſton* or *Bilſon* that I think is ſo indeed, ſo very fine that it is hardly palpable, it is of a deep orange colour, and is ſent for by *Artiſts* living at a great diſtance, and uſed by them as a *ſpaud* to caſt *Metalls* with. Other *ſands* of uſe I met with none, but *ſands* for the *glaſs-houſes*, whereof I was told of one that excell'd the reſt, dug ſomewhere near *Weſt Bromwich*; and a ſort of *ſand* they have at *Gaſton* in the pariſh of *Ipſton*, which being firſt waſh't from the dirt, then dryed and ſifted from the ſmaller ſand, and in another ſieve from the pebbles it has amongſt it, they then uſe it, being ſtrewed upon a greaſy boar'd, as an excellent *ſand* to whet their *Sithes*, whence it has the denomination of *Sithe-Sand*. Unleſs we may reckon a ſort of friable ſtone of a deep yellow colour found *ſparſim* in lumps amongſt the ſtiffeſt and fatteſt *Marles* at *Eardley* in the pariſh of *Audley*, amongſt the *ſands*: which I think I need not ſcruple much to doe, ſince I find them to crumble between the fingers, yet ſo very fine are its parts that at the ſame

[c] *Dell' Hiſt. naturale* Lib. 1. cap. 21. *ſub finem.*

time

time they give a *colour*, and as the ingenious *Robert Wilmot* of *Eardley* Eſq; in whoſe grounds they are found, ſent me word, are ſome ſorts of them uſed by the *painters*, and by the *workmen* all call'd by the general name of *Roſemary-ſtones*.

10. What theſe ſhould be, and how come to be produced in a ſubſtance of ſo quite a different nature from them, as a ſtiff fat Marle; was a *problem* that at firſt ſight gave me ſome trouble: till remembring that in *Oxfordſhire* I met with much ſuch *yellow lumps* growing *ſparſim* here and there amongſt the *Chalk* in moſt of the pits of the *Chiltern Country*, there call'd *Iron moulds*[d]; and that the learned *Martin Liſter* Eſq; mentions the ſame found in *Chalk* by the name of *Ruſt balls* near *Foulmore* in *Cambridg-ſhire*, and in the *Woolds* in *Yorkſhire*, which upon due *calcination* would apply to the *Magnet*[e]. Calling theſe things to mind, and that *chalk* was a ſubſtance as quite different from the *Ruſt balls* and *Iron moulds*, as *Marle* could be from theſe *Roſemary ſtones*, and as unlikely to produce any ſuch effect: I reſolved to trye both the one and the other, according to the preſcription of *Agricola* cited by Mr. *Liſter*; which I did with that ſucceſs, that I found within an hour that both the *Iron-moulds* and *Roſemary ſtones* did acknowledg the *Magnet*; whence 'tis plain that notwithſtanding they were all found in beds of ſuch diſſimilar ſubſtances, that yet they are all certainly *Iron-Ores*, and theſe our *Roſemary ſtones*, of the *arenaceous* kind; part whereof upon *ignition* being made into *Iron*, owned it ſelf ſuch upon application of the *Magnet*.

11. That *pebbles* as well as *ſands* are alſo *pyrites*, beſide their ſtrikeing fire, we have this further evidence, that ſome *pebbles* at leaſt are made out of *Sand*; wherefore if *ſands* themſelves are *pyrites*, the *pebbles* made of *them* muſt be ſo too. Now that ſome *pebbles* are made of *ſand*, I was amply ſatiſfyed at *Bentley hall* the ſeat of the Worſhipfull *Tho*: *Lane* Eſq; (of which more hereafter) where I was ſhewn a large ſort of oval *pebbles* of a reddiſh colour, dug up with the *brick-earth* near the *dog-kennel* poole, whoſe outward coats were hard and ſmooth, but within containing only a bulk of *ſand* equal to the intended *bigneſs* of the *ſtone*; ſome of them having little more than an outward *ſhell*; others harden'd half way; others ¾ ſtone, and *ſand* only at the *center*; and ſome quite petrifyed; the *induration* ſeeming to increaſe gradually *inward* in proceſs of time, till at length the *petrification* is completed in the *Center*; juſt as I found it in the *round flints* in *Oxfordſhire*[f], which contain chalk within, and have coats thicker and thiner according to the ſeniority of their induration. As I ſuppoſe alſo

[d] *Nat. Hiſt. of Oxfordſh.* chap. 3. §. 51. [e] *Mart. Liſter de font. Med. Angl.* cap. 2. §. 9
[f] *Nat. Hiſt. of Oxfordſh.* chap. 5. §. 180.

thoſe white pebbles have, that contain a mealy ſubſtance in them, found about *Treaſle*, which I take to be the *Geodes* of *Dioſcorides*, or *Ætites Plinii*, 4^ti^ *generis*, *Taphiuſius dictus*[g]. Nor are theſe the only *Examples* that I have ſeen of this kind, for I have now a ſtone by me of a dark reddiſh colour, brought out of *Northamptonſhire* and given me by the learned Dr. *Robert Pit* fellow of *Wadham College* and of the *Royal Society*, that has a firme coat without, yet is fill'd up within, with nothing but a looſe *ſand*; which whether a *pebble* or no, though I cannot ſafely ſay, yet I think verily I may, that it muſt be produced after the ſame manner.

12. Yet Nature does not ſeem to uſe the ſame *proceſs*, in production of *ſtones* though of the ſame *kind* and *colour*, for in a ground call'd *Caſtle-croft* Northward of *Nether-Pen* in a red clay, the *pebbles* ſenſibly grow of the ſame colour with the earth about, but always commence their *induration* at the *center*, being gradually ſofter toward the out ſide, ending in a ſubſtance nearer to a *liquid* than the earth at ſome diſtance, which is more agreeable to the *Hypotheſis* of all *ſtones* having been once *liquids*, and of their *augmentation* by *juxta poſition*. The latter whereof ſeems to be ſtrongly confirmed, by a *firm pebble* that was ſhewn me by my worthy friend the Worſhipfull *Francis Wolferſtan* Eſq; having a ſmooth hole through it about the bigneſs of a *Rye-ſtraw*, out of which He pick't the intire rind of ſome ſort of wood which was rotted away, whence He rationally collected that the *pebble* muſt have grown round it. The ſame worthy *Gentleman* ſtill proſecuting the ſame *argument*, ſent me not long after another *pebble* with an incruſtation of clay and ſand mixt, adhering to it; whereby it was plain that ſtones doe contract other *ſubſtances* to them, and gradually convert them into their owne kind; and hence He moſt ingeniouſly ſhewed too, how it comes to paſs, that even the *pebble* (as this was) is frequently diverſify'd with different colours, theſe being the *ſtones* of all others moſt lyable to be removed from place to place, whence they contract matter to them of different textures and qualities, and ſo conſequently thence, are of *various colours*.

13. Whence in all probability the opake pebbles on *Satnall hills*, and all over *Cank-wood* have their variety of colours, theſe being places of great action, and ſo the ſtones the more likely to have frequent diſturbance; than which I never ſawany more pleſantly variegated, or fitter for *Cabinets*, *hafts* of *knives*, or other *Lapidaries* work. Of this ſort I was ſhewn ſeverall finely poliſht by the virtuous and moſt ingenious *Iane* Lady *Gerard*; and had others given me by the hopefull young Gent. *Francis Wolferſtan* jun.

[g] *C. Plinii 2 di. Hiſt. Nat.* Lib. 36. cap. 21.

jun. and his virtuous Siſter Ms. *Ann*, of their owne gathering about *Statfold*; I had alſo another preſented me with blewiſh veins, by a fair Lady at *Lyſwis*: which all took ſo ſpecious and elegant a gloſs, that they ſeem'd at leaſt to equal, if not ſurpaſs the *Achat*. But no more of theſe here, they being ſo very fine that they ſhould rather have been reckon'd amongſt the ſtones of *Ornament*. Nor have I more to add concerning this ſort of ſtones, but that in the hollow way between the hills on *Weeford heath*, as you paſs between *Swynfen* and *Cannel* yate, there lye divers little heaps of them, and one great one at the top of the hill at *Weeford Park* corner, which according to the tradition of the *Country*, was placed there in memory of a *Biſhop* of *Lichfield*, who rideing thither with a large attendance, was ſet upon by *Robbers*, and *Himſelf* and all his men being ſlain, that theſe heaps of *ſtones* were layd where each dead body was found: whence by the *Country* people and *travellers* they are call'd the *Biſhops* ſtones. But this is merely a fable of them, the truth follows, as I received it from the learned and judicious Antiquary Sr. Willam *Dugdale* Kt. *Garter* King at Armes.

14. About the later end of the raigne of King *Henry* the 8. or ſhortly after, *John Veſſy* then *Biſhop* of *Exeter*, a man of a publick ſpirit, and borne cloſe by, at *Sutton Cofield* in *Warwickſhire*, reſolving with himſelf to become a *benefactor* to that place and the parts adjacent, procured for that *towne* not only a *Mercat* and *fairs*, but got it alſo incorporated by the name of a *Warden* and *fellowſhip*, building alſo a great number of houſes upon the large waſts of that *pariſh*, intending to ſet up the manufacture of *Kerſeys* there, as it was practiſed in *Devonſhire* where he was *Biſhop*: during theſe tranſactions at *Sutton Cofield* the good B^p. was frequently thereabout, and finding the road above mention'd much annoyed with theſe *rolling pebbles*, which frequently occaſion'd *travellers* horſes to ſtumble and ſometimes to fall, amongſt others of his *works* of *Charity*, He hired poore people to gather them out of the way, and lay them thus on *heaps*; and this is the true reaſon they are call'd the *Biſhops* ſtones. Which relation was given in, and teſtifyed for truth, in King *James*'s time, by a woman that lived at *Black-brook* hard by, who was examind upon a *commiſſion* out of *Chancery*, then executed by one Mr. *John Brandreth* of *Weeford*, and others, concerning the extent of *Common* of the *Pariſhes* adjacent.

15. Hither alſo may be referr'd the *Micæ*, *aurea* and *nigra*, if all that ſtrike fire belong to this place; whereof the former was found in the *Fold-yard* near *Statfold* houſe, and given me by the Worſhipfull *Francis Wolferſton* Eſq; and the latter on the banks of *Aqualat* mear, and on *Seaſdon* heath, which may otherwiſe be call'd

the *rock Mica*, it having been found ſo great in bulk, and ſo very hard, that they have made *Mill ſtones* of it. This, as I am inform'd from the *Cabinet* of the learned *Martin Liſter*, is alſo to be met with at *Arncliff* in *Yorkſhire* [h]; which though it ſeem to be a white marble fill'd with black ſparks, He is pleaſ'd to demominat *Talcum aureum*, becauſe after *calcination* theſe black ſparks turn of a golden colour as ours alſo doe, and ſome of them owne the *Magnet*; whence 'tis clear they carry ſomewhat of an *Iron-Ore* with them, as well as a *ſulphur*; and may the rather upon that account be reckond amongſt the *Pyrites aurii*, though they carry not ſo much either of the one or the other as the *golden Marchaſite* or *pyrites aureus* ſtrictly ſo call'd, or the *pyrites argenteus*; the former whereof is found in every *coal pit*, and has ſo much *ſulphur*, that 'tis the principal ingredient that ſets them on fire; the latter 'tis true is more rare in this *County* and has leſs *ſulphur*, but I met with it at *Sedgley* in the hands of Mr. *Ievon* of that *pariſh*, who gave me a peece of it which was found, as He told me, ſomewhere there about: both which *calcined* apply to the *Magnet*, and confeſs themſelves in part to be the *Ores* of *Iron*, and lead me next to conſider

16. The other *Iron Ores* of *Staffordſhire*, they being all of them *ſtones*, and ſo falling under this *chapter*: which lye in ſome places but thin, others thicker, and as the *coal* is, divided into *meaſures* of different *donominations*. In *Tunſtall* field, in the Royalty of the right Honorable *Digby* Lord *Gerard*, in diging for *Iron-ſtone*, they meet firſt with a ſmall *baſs*, then a ſtrong *baſs*, then a ſort of ſtone from its colour call'd *blew-cap*, good for nothing; and after that the *Iron-ſtone* of a darkiſh blew colour, which ordinarily lyes here not above two foot in thickneſs. On *Mear-heath* they obſerve in digging for *Iron ſtone*, that if they meet with roches, ſand, gravel, and clay, that the *head* of the *mine* is quickly eaten out; eſpecially the laſt, which ſo keeps downe the head that it comes to nothing preſently, all which they count bad, the works being thinner and more chargeable to dig: but if they meet with *Mine-earth* (as they call it) which is *white*, then they promiſe themſelves good mines both of *Iron ſtone* and *coal*, which as at moſt other places lye here together, the *ſtone* above the *coale*, between four fingers and ½ a foot thick, having *baſs* above and below it; in which ſometimes they alſo meet an *Iron Ore*, they call *ball-ſtones*, diſtinct from the *vein*; and then indeed 'tis thicker: this where the *Iron ſtone* and *coal* lye together, they call the *deep mine* which is not the beſt, the *chalky-Mine*, and the *little-Mine* being preferr'd before it; yet they are all work't by Mr. *Foley* of *Longdon* a village hard by.

17. About *Dudley* where the *Iron-ſtone* lyes, under the ten

[h] *Vid. Scrinium Liſteri in Muſæo Aſhmolian. Loculo* 14.

yards

yards, thickneſs of *coal*, and above the *heathen coal*, of a conſiderable thickneſs; it is divided, as I ſaid the coale was, into divers *meaſures* of different *denominations*; which take as follows

1. The *Black-row-grains*,
2. The *Dun row-grains*,
3. The *White-row-grains*,
all ſo called from *Earths* of thoſe colours in which they lye
4. The *Rider-ſtone*,
5. The *Cloud-ſtone*,
6. The *Bottom-ſtone*
7. The *Cannoc* or *Cannot Stone*.

at *Walſall* and *Ruſhall* they alſo divide their *Iron-Ore* into ſeveral ſorts, ſuch as

1. *Black bothum*,
2. *Gray bothum*,
3. *Chatterpye*, being of the colour of a *Magpye*,
4. *Gray meaſure*,
5. *Muſh*,
6. *White meaſure*.

the two firſt whereof are ſeldom made uſe of, they are ſo very mean; the two middle ſorts but indifferent; the two laſt the principal ſorts; but *Muſh* the beſt of all, ſome of it being a ſmall comby-ſtone, other ſome round and hollow, and many times fill'd with a briſke ſweet liquor which the *Workmen* drink greedily, ſo very rich an Ore that they ſay it may be made into Iron in a common Forge. Alſo at many other places, as at *Cheſlinhay*, *Red ſtreet*, *Ape-dale*, *Wednesbury*, *Darlaſton* &c. they digg *Iron-ſtone*, the ſeveral meaſures whereof have alſo obtained different names, though gotten but at little diſtance from one another, which I forbear to enumerat, thoſe above mentiond being ſufficient, for a *ſpecimen* of them.

18. And thus I had finiſh't my account of the *Iron-Ores* found in this *County*, but that I think the ſweet liquor that attends ſome of them, may deſerve a little further conſideration, whereof I received a moſt accurat account from the Worſhipfull *Henry Legh* of *Ruſhall* Eſq; in whoſe lands, particularly in the *Mill-meddow*, near the *furnace* in the *Park*; in the *Moſs*-cloſe near the old *Vicaridg*-houſe; and in the *furnace* piece or Leſow: it is frequently met with amongſt the beſt ſort of *Iron-ſtone* call'd *Muſh*; in round or oval blackiſh and rediſh ſtones, ſometimes as big as the crown of ones hat, hollow and like a *hony-comb* within, and holding a pint of this matter; which according to the colour of the *comb* within (whatever the ſtone be without) is either *red*, or *white*, and whether the one or the other, of a ſweet ſharp taſt, very cold, and cuting, yet greedily drank by the *Workmen*. The whitiſh ſort whereof was alſo met with at *Sherriff-Hales* in this *County*, by the ingenious

George

George Plaxton Rector there, especially in that sort of *Mine*, the *Country* people call the *White Mine*, which yeilds the best *Iron-stone*, where the *Workmen* commonly upon breaking a stone find it inclosed in the *Center*, sometime to the quantity of a *Hogs-head* in one cavity, of a sweetish tast, but accompanyed with a *Vitriolic* or *Iron like* twang [i].

19. The same, as we find in that Letter of the inquisitive Mr. *Iessop* of *Bromhall* in *Yorkshire* communicated to the Royal Society by the learned *Martin Lister*, seems also to have been met with in a *coal-Mine* in *Darbyshire* 49 yards deep, by one Captain *Wain* a diligent and knowing person in *Mines*, who sent Mr. *Iessop* a whitish liquor, resembling *cream* both in colour and consistence, found there in great quantities [k]. Mr. *Webster* also acquaints us that an experienced *Miner* found it in a hard stone, by his direction, in the *Lead-mines* of *Darby-shire*, which was of a whiteish colour and some of it very thin and liquid, and some of it soft like *butter* [l]. What this substance should be, or whence it should come, none of the *workmen* or others that I discour'st about it, could give me satisfaction, and indeed it is hard to determin any thing in these *secrets* of *Nature*: but if I may have liberty to give my opinion which is not altogether groundless, I take it to be the *Gur* of the *Adeptists*, i. e. the matter of *Metalls* before it be coagulated into a *Metallic* form, or the *Metalla in suis principiis*: for taking some of this white liquor found in the *Iron-stone* at *Rushall* which I brought away with me and was now dryed pretty hard, and burning it in a *Crucible*, it was quickly *maturated* into *Iron*, and applyed to the *Magnet*; as I beleive that would have done which was found at *Sherriff-Hales*, and in the Coal-mine and Lead-Mine of *Darby-shire*, for though found in *Mines* of a different denominations, yet every body knows how frequently *Iron-stone* accompanys *coale*, out of which it might issue; and that possibly the *stone* in which this matter was inclosed in the *Lead Mine* might be an *Iron-stone* too, it being usuall for *Metalls* to be found mixt; though I must not deny neither, but that it might be the *Gur* of *Lead*, that being affirm'd to be of much the same colour and consistence.

20. Of the above mentioned *Ores* they make severall sorts of *Iron*, differing in goodness according to the *richness* or *poverty* of the *Ores*, and haveing *names* somewhat agreeable to the qualities of each *Metall*. The first and meanest whereof, they call *yellow share* an ill sort that runs all to dirt and is good for nothing, and such is the *Iron* made of the *Cannock* or *Cannot stone*, the lowest *measure* of *Iron Ore* about *Dudley*, which is so very sulphureous and terrestiall, that its not fit to make *Iron*: this sort some others are

[i] *Philosoph. Transact.* Num. 100. [k] *Ibidem.* [l] *Webster's Hist of Metalls* chap. 3. p. 151.

pleas'd

pleaſe'd to call *Redſhare*, becauſe ſays *Dud. Dudley* in his *Metallum Martis* [m], if a *Workman* ſhould forge out a ſheare of this for a plough, it is ſo brittle it would crack in the *red-heat*, ſo unfit is it to make a Huſbandmans ſheare. The ſecond ſort of *Iron* they ſtile *coldſhear* which though it will not break when red hot, yet in *hot heat* or *cold*, the biggeſt bar of it may be broken with a ſmall blow upon an *Anvil*, if it be perfect *coldſheare Iron*; the *Ore* for this *Iron* the have at *Cheſlin-hay*, *Redſtreet*, and *Apedale*, the worſt and leaneſt being that from *Cheſlin-hay*, the next from *Redſtreet* being a red ſtone, and the beſt of the three from *Apedale*, being of a blewiſh colour, and call'd *Boylom*; yet theſe three are commonly mixt together, and ſometimes with others *ſtones* to make them better or worſe: the only uſes that I could hear of for this ſort of *Iron*, being to make ſmall *nailes* not above *two penny*, and *ſheering nailes* for ſhips having broad heads and ſhort ſhanks, to keep the timber from being eaten by *grubs*.

21. The third ſort of *Iron* they make in this *County* they call *blend-metal*, of which they make *nailes* from three ſhillings to ten ſhillings, and all ſorts of heavy ware, ſuch as *Hammers* &c. and in ſome *Countries* Horſhooes; for which they have the *Ore* from *Wednesbury* and *Darlaſton*. The fourth and beſt ſorts of *Iron* they call *tough-Iron* of which they make all ſorts of the beſt wares, there being nothing ſo good but may be made of this, for which thy have their *Ore* cheifly at *Ruſhall* in the grounds of the Worſhpfull *Hen*: *Legh* Eſq; They have ſome alſo from *Walſall* but not ſo good, whereof the ſeveral *meaſures* were enumerated above. Of the *Iron* made of theſe (I ſay) they make their beſt *wares*, either mediatly or immediatly, the beſt *Iron* of all being made out of the *fileings* and *pareings* of the *Lockſmiths*, which they make up into *balls* with water, and dry them by the fire into hard balls; then they put it into the fire and melt it by *blaſt*, licking it up with a rodd of *Iron* as they doe *glaſs* at the *glaſ-houſes*, and then beat it into a barr, which they uſe cheifly for *keys*, and other fine works.

22. When they have gotten their *Ore*, before 'tis fit for the *furnace*, they burn or calcine it upon the open ground, with ſmall charcoal, wood, or ſea-cole, to make it break into ſmall pieces, which will be done in 3 days, and this they call *annealing* it, or fiting it for the furnace. In the mean while they alſo heat their *furnace* for a weeks time with charcoal without blowing it, which they call *ſeaſoning* it, and then they bring the *Ore* to the *furnace* thus prepared, and throw it in with the charcole in baskets *viciſſim*, i. e. a basket of *Ore*, and then a baſket of *coal* S. S. S. where by two vaſt pair of *bellows* placed behind the *furnace*, and

[m] *D. Dudley's Metallum Martis* p. 41.

compreſs'd alternatly by a large wheel turned by water, the fire is made ſo intenſe, that after 3 days time the *metall* will begin to run, ſtill after increaſing, till at length in fourteenights time they can run a *Sow* and *piggs* once in 12 hours, which they doe in a bed of ſand before the mouth of the *furnace*, wherein they make one larger furrow than the reſt, next the *Timp* (where the *metall* comes forth) which is for the *Sow*, from whence they draw two or three and twenty others (like the *labells* of a *file* in *Heraldry*) for the *piggs*, all which too they make greater or leſſer according to the quantity of their *Metall*: into theſe when their *Receivers* are full they let it forth, which is made ſo very fluid by the violence of the fire, that it not only runs to the utmoſt diſtance of the *furrows* but ſtands boiling in them for a conſiderable time: before it is cold, that is when it begins to blacken at top, and the *red* to goe off, they break the *Sow* and *pigs* off from one another, and the *ſow* into the ſame length with the *pigs*, though in the runing it is longer and bigger much, which is now done with eaſe; whereas if let alone till they are quite cold, they will either not break at all, or not without difficulty.

23. In melting of *Iron-ore* ſome have great regard to the make of the *furnace*, and placeing of the *bellows*; which that the *Reader* may the better apprehend, He muſt be inform'd, that the *hearth* of the *furnace* into which the *Ore* and *coal* fall, is ordinarily built ſquare, the ſides deſcending obliquely and drawing near to one another toward the bottom, like the *Hopper* of a *Mill*: where theſe oblique walls terminat, which they term the *boſhes*, there are joyned four other *ſtones*, but theſe are commonly ſet perpendicular, and reach to the *bottom* ſtone, makeing the *perpendicular ſquare* that receives the *Metall*; which four walls have the following names; that next the *bellows*, the *tuarn* or *tuiron wall*; that againſt it, the *wind-wall* or *ſpirit-plate*; that where the *Metall* comes out, the *Timp* or *fore plate*; that over againſt it, the *back-wall*: and theſe according as they may be pitch't leſs *tranſhaw*, or more *borrow*; will mend, they ſay, or alter the nature of the *Iron*; if *tranſhaw* or tranſiring from the *blaſt*, the *Iron* will be more *cold-ſhear*, leſs fined; more indeed to the *Maſters* profit, but leſs to him that has the *manufactorage* of it, and to him that uſeth it: whereas the *Iron* made in a *borrow* work, is much more tough and ſerviceable. Nor is the ordering of the *bellows* of leſs concern, which have uſually their entrance into the *furnace* between the bottom of the *Hopper* or *boſhes*, and the *bottom ſtone*, and are placed neare or farther off according as the *Ore* and *Metall* require. Tis alſo of importance in melting of *Iron Ore*, that there be five or

ſix

ſix *ſoughs* made under the *Furnace* (as it is at *Mare*) in parallel lines to the ſtream that turns the *wheel* which compreſſes the *bellows*, to drain away the *moiſture* from the *furnace*, for ſhould the leaſt drop of water come into the *Metall*, it would blow up the *furnace*, and the *Metall* would fly about the *Workmens* ears; from which *ſoughs* they muſt alſo have a conical pipe about 9 inches at bottom, ſet to convey the *damps* from them into the open Air, which too otherwiſe would annoy the *VVorkmen* even to death.

24. From the *Furnaces*, they bring their *Sows* and *pigs* of *Iron* when broken aſunder, and into lengths, to the *Forges*; which are of two ſorts, but commonly (as at *Cunſall*) ſtanding together under the ſame roof; one whereof they call the *Finery*, the other the *Chafery*: they are both of them *open hearths*, upon which they place great heaps of *coal*, which are blown by *bellows* like to thoſe of the *Furnaces*, and compreſſed the ſame way, but nothing near ſo large. In theſe two *forges* they give the *Sow* and *piggs* 5 ſeverall *heats* before they are perfectly wrought into *barrs*. Firſt in the *Finery* they are melted down as thin as lead, where the *Metall* in an hour thickens by degrees into a lump or maſs, which they call a *loop*, this they bring to the great *Hammer* raiſed by the motion of a *water-wheel*, and firſt beat it into a thick ſquare, which they call a *half bloom*. Then 2ly they put it into the *Finery* again for an hour, and then bring it again to the ſame *Hammer*, where they work it into a *bloom*, which is a ſquare barr in the middle, and two ſquare knobs at the ends, one much leſs then the other, the ſmaller being call'd the *Ancony* end, and the greater the *Mocket head*. And this is all they doe at the *Finery*. Then 3. the *Ancony end* is brought to the *Chafery*, where after it has been heated for a quarter of an hour, it is alſo brought to the *Hammer*, and there beat quite out to a *bar*, firſt at that end; and after that, the *Mocket head* is brought alſo 4. to the *chafery*, which being *thick*, requires two *heats*, before it can be wrought under the *Hammer*, into bars of ſuch ſhapes and ſizes as they think fitteſt for *Sale*.

25. Whereof, thoſe they intend to be cut into *rodds*, are carryed to the *ſlitting Mills*, where they firſt break or cut them cold with the force of one of the *VVheels* into ſhort lengths; then they are put into a *furnace* to be heated red hot to a good height, and then brought ſingly to the *Rollers*, by which they are drawn even, and to a greater length: after this another *VVorkman* takes them whilſt hot and puts them through the *Cutters*, which are of divers ſizes, and may be put on and off, according to pleaſure: then another lays them ſtraight alſo whilſt hot, and when cold binds them into *faggots*, and then they are fitting for ſale. And thus I have given an account of the *Iron works* of *Staffordſhire* from the *Ore*

to the *ſlitting Mills*, as they are now exerciſed in their perfection; the improvement whereof we ſhall find very great, if we look back upon the *Methods* of our *Anceſtors* who made *Iron* in *foot blaſts* or *bloomeries*, by Mens treading the bellows, by which way they could make but one little lump or *bloom* of *Iron* in a day, not 100 weight; leaving as much *Iron* in the *Slag* as they got out. Whereas now they will make two or three *tuns* of *caſt Iron* in 24 hours; leaving the *Slag* ſo poore, that the *Founders* cannot melt them again to profit. Not to mention again the vaſt advantage they have from the new Invention of *ſlitting Mills*, for cutting their *barrs* into *rodds*, above what they had anciently.

26. Thus I ſay the *Iron-works* are exerciſed in their *perfection*, and all their principal *Iron* undergoes all the forementiond preparations; not but that for ſeveral purpoſes, as for the *backs* of *Chimneys*, *Garden-rolls*, and ſuch like; they uſe a ſort of *caſt-Iron* which they take out of the *Receivers* of the *Furnaces*, as ſoon as it is melted, in great *Ladles*, and pour it into *moulds* of fine ſand, in like manner as they caſt the other ſofter *Metalls*. Thus the ingenious *Will. Chetwynd* of *Rugeley* Eſq; at *Madeley* furnace, caſt *Iron-Rolls* for gardens, hollow like the *Mills* for *Sugar Canes*, of 5, 6, 7 or 800 weight a piece; the hollows whereof being fill'd with timber, and wedg'd up cloſe, the other *Iron-work* of the *Roll*, is faſtned to the wood in the ſame place as in other *rolls*, which are weightyer and more ſubſtantial than any other rolls I have elſwhere ſeen. For ſuch purpoſes as theſe, this ſerves well enough, but for others it will not, for it is ſo brittle, that being heated, with one blow of a hammer it will break all to pieces.

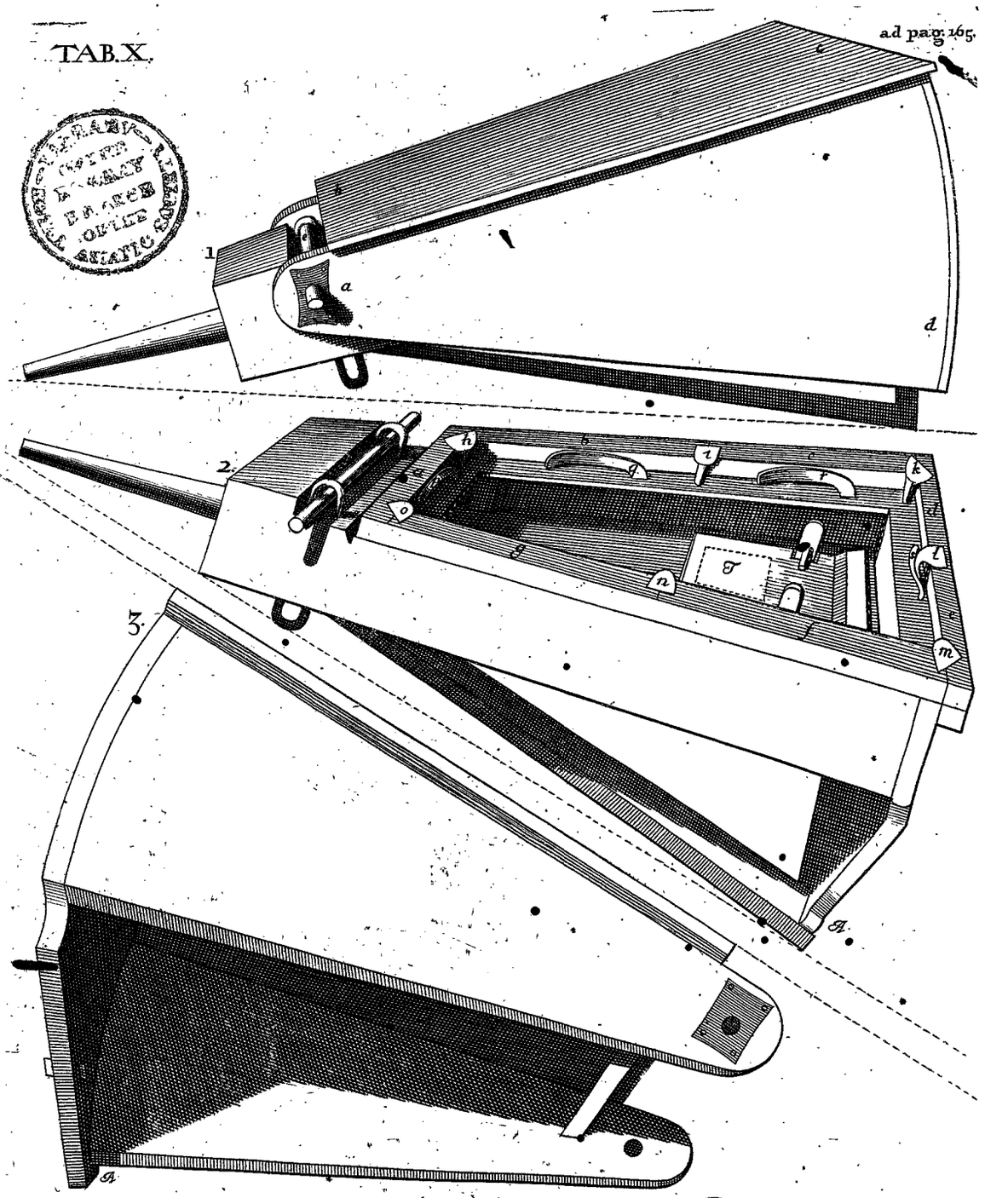
27. And thus one would have thought, I ſhould have done with the *Iron-works*, and all relating to them, as indeed I verily thought I had; but upon examination of a *reddiſh ſtone* very much like *Cinnaber*, very weighty, and being wet with the tongue, drawing red lines; found ſomewhere in the grounds of the worthy Mr. *Wightwick* of *Wightwick*, which I thought might have held ſome other *Metall*; upon *calcination*, according to the preſcription of worthy Mr. *Liſter*, I found it to apply to the *Magnet*, and to be nothing elſe but a *Hæmatites*, which for that reaſon he very rationally makes one of the *ſpecies* of *Iron-Ores*[n]. And of this kind are the red ſtones found in *Tene* brook, which are alſo very weighty, and draw (being a little wet) red lines like *ruddle*, whereof I have a very large one in my *Staffordſhire Cabinet*, given me by the truly *Honorable*, becauſe truly *virtuous* and *learned*, *Iane* Lady *Gerard*

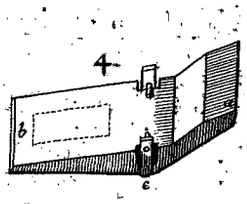
[n] *M. Liſteri de Font. Med. Angl.* cap. 2.

of

TAB. X.

ad pag. 165.





Mburghers sculp.

of *Gerards Bromley*, which Her *Ladyſhip* truly named the *Sanguine* or *blood ſtone*, which they uſe it ſeems, by way of *ſignature*, to give in new milk, and ſometimes in Ale warmed, to their *Cattle* that make a *mean*, or *bloody water*, and this with conſtant ſucceſs: whereat I doe not ſo much wonder, ſince every body knows what *ſtiptical* qualities, alwayes attend ferrugineous bodies.

28. The *Copper Ores* of this *County* muſt alſo be referr'd hither, not only as they are *Stones*, but alſo as they include much *Sulphur*, whereof there has been dug divers ſorts, out of *Ecton Hill* in the *Pariſh* of *Wetton*, belonging to the right Honorable *William* Earl of *Devon*: there is of it too about *Beresford*, near the moſt ingenious Mr. *Cottons*; and at *upper Elkſton*, and ſome think at *Madeley*, both in the Lands of the Worſhipful *John Offley* Eſq; but none were ever thought worth diging but at *Ecton Hill*, where the *Mine* was workt ſeveral years by my Lord of *Devon* himſelf, Sr. *Richard Fleetwood*, and ſome *Dutch men*, but they had all left it off, before I came into the *Country* as not worth their while; *Copper* comeing cheaper from *Sweden* than they could make it here; ſo that the *workmen* being diſperſt I could learn little more concerning it, but that the *veins* lay from eight, to fifty yards deep, but all dipt *North-Eaſterly*; that they broke the *rocks* with *Gunpowder*, and got 3 ſorts of *Ore*; 1. a black ſort which was the beſt; 2. a yellow ſort, the worſt; and 3. a mixt ſort of both; which they *Smelted* at *Ellaſton* not far off, where they had *Mills* &c. for the purpoſe; but all was out of order before I came thither, and the famous *wooden bellows* that had no *leather* about them, carryed away to *Snelſton* in *Darby-ſhire* whither I went to ſee them; where though ſo laid up in an *out houſe* with other cumberſom matters upon them, that I could not take them downe, ſo as to examin them ſtrictly, yet I could ſee ſo much of them that by the help of a ſmaller *pattern* in the *Repoſitory* of the *Royal Society*, I have made ſhift to give a draught, and ſome tolerable account of them, as in *Tab.* 10. where,

Fig. 1. Repreſents the whole *Inſtrument* as it appears on the out ſide; the Cover *a.b.c.d.* being lifted up at every blaſt, and compreſs't with the water wheele, as is uſual in other *furnace* bellows, and turning upon the pin, *e.*

Fig. 2. Is the lower part of the *bellows* which ſtands always fixt, and is covered by *Fig.* 3. *a.b.c.d.e.f.g.* are ſquare ſticks which lye looſe, being only thruſt under the hooks of *Iron* marked *h. i. k. l, m. n. o*, two ends being ſtaid by one hook or hold-faſt, every one of which ſticks, hath a ſpring of *Iron* on the inſide marked *p. q. r. s.* which keep them ſtill cloſe to the inſide of the outward Cover, *Fig.* 3. and ſo keep in the *Air*. The *valve* in the bottom board is marked *T*. and the *prickt* lines ſhew the hole under it, to let in the *Air*.

Fig. 3. is to be whelmed upon *Fig.* 2. ſo that *A.* in *Fig.* 3. touch *A.* in *Fig.* 2. and then they appear as in *Fig.* 1.

Fig. 4. Is the *valve* or door, which when the *Air* enters in, riſes at *b.* and dips at *a.* and when it goes out, dips at *b.* and falls upon a woolen liſt tackt round the hole in the bottom board, and riſes at *a.* turning upon the pin, at *c.*

29. After the *Copper*, come we next to the *Lead-Ores* of this County, which alſo belong to this place; for beſide that they cannot be ſaid to be *Earths*, it is dug here in a yellowiſh *ſtone*, with *Cawk* and *Spar*, in *Fowns* field belonging to one *Townley* on the ſide of *Lawton* park; where the *workmen* diſtinguiſht it into three ſorts, viz. *round Ore*, *ſmall Ore*, and *Smithum*; the two laſt whereof are firſt beaten to pieces with an inſtrument called a *Knocking-bucker*, and the *Ore* ſeparated from the *ſtone* with another call'd a *Limp*. and then waſht in a *Sieve* made with Iron-wyer; yet further to clear it from terreſtrieties: which done, it is ſold to the *Potters* at *Burſlem* for 6 or 7 pound per *Tun*, who have occaſion for moſt that is found here for glaſeing their *Pots*. There has been *Lead-ore* alſo dug at *Ecton-Hill*; where, ſome of it, lyes ſo near the day, that it was firſt found by the plough: Here alſo they diſtinguiſh't it into three ſorts, but under different names from the former; the beſt being call'd *Bing*; the middle ſort, *Bowſe*; and the Lead duſt, *Smithum*. And there was *Lead-Ore* dug formerly by the right Honorable the *Earle* of *Shrewsbury* at *Ribden*, but none of theſe works were ever very conſiderable, nor is it likely any ſuch ſhould ever be found here, it being obſerved that wherever there is much *coal*, there is ſo much the leſs *Lead*, its ſulphureous ſpirit being too ſtrong for the production of that *Metall*: upon which account, when near *Mendip* there was found 2 or 300 weight of very good *Lead-Ore* growing to a vein of *Coal*, it was lookt upon by all, as a very great rarity [o].

30. But nothing ſo great, as what was told me lately concerning this *Metall*, by the Worſhipful *Philip Foley* of *Preſtwood* Eſq; *viz.* that notwithſtanding amongſt *Metalls*, *Lead* holds the third place after *Gold* and *Quickſilver*, it being lighter than *Gold* about a third part, and heavier than *Silver* about a fourth; yet that *Anno* 1682. there was a *Leaden-Coffin*, of one of the Honorable family of *Skeffington* of *Fiſherwick*, laid in the Vault of St. *Micheals* Church at *Lichfield* (which as I noted before is frequently floated) that ſwam ſo cleverly in 9 inches water, that one might thruſt it to and fro with a common walking ſtick; which he told me too, was actually done, by that judicious Gent. Mr. *Swinfen* of *Swinfen*. This, by the *vulgar* being look't upon as little leſs than a *Miracle*, I

[o] *Philoſoph. Collect. Num.* 1.

thought

thought it concern'd me, having occaſion to ſpake of this *Metall*, not wholy to paſs it by, but to let them know that it is ſo far from a wonder, that if the *Coffin* were ſo thin, and the body ſo conſumed (as no queſtion they were) as to be lighter than that quantity of water which is equal to the bulk of the *Coffin*, the rules of *Hydroſtaticks* require it muſt be ſo, and could no more be otherwiſe, than that a *lighter* body ſhould not give place to a *heavyer*, which would have been a wonder indeed: No bodies whatever ſinking *deeper* in water, than to that *point*, where the immerſt part of the floating body becomes equal in *bulk*, to as much water as is equal in *weight*, to the whole body.

31. Having done with the *Stones* holding *Salts*, *Sulphurs*, and *Metalls*, the next that offer themſelves to my conſideration, are ſuch as only ſupply the *neceſſities* of Mankind in ſome peculiar manner; ſuch as he diggs forth the *Quarries* for *building*, for *grinding ſtones*, *Mill-ſtones*, &c. of the former whereof there is plenty almoſt every where, within little diſtance, which for the moſt part as in *Oxfordſhire* is gotten and workt eaſy, yet endures the weather ſo well, that it improves in it, to a competent hardneſs: There are ſeveral ſorts of it differing in grain and colour; ſome finer, ſome courſer; ſome reddiſh, ſome white; ſome mixt of both thoſe colours; and ſome ſtreak't with black: about *Lichfield* they build chiefly with a *reddiſh* ſort of *ſtone*, and ſo about *Newcaſtle*, and at *Leek*; at which laſt place they cleave it with *wedges* as they ſee the grain run, which is not always agreeable to the *plane* of the *Horizon*, or a little declining from it, but ſometimes *perpendicular* to it. They have alſo a whiter harder ſtone, that is a good *weather*, but not a good *fire ſtone*, made of a finer grit, (as moſt white ſtones are than red) and working to a finer *Arris*. Much of this colour and conſiſtence is the ſtone of the *Quarry* betwixt *Ingeſtre* and *Salt*, and about *Beech*; pretty white and hard, but not without a caſt of *redneſs* here and there, and ſometimes mark't with a *yellowiſh* ſort of *veine*. The whiteſt and freeſt from any of thoſe *ſtains*, being that dug at *Fulford* and *Chappel Charlton*, which are purely white, and of a fine grain enough.

32. But it would be endleſs to enumerat the *Quarries* of this County, ſhould I continue to proſecute ſuch as thoſe above menti-on'd; wherefore I ſhall now reſtrain my ſelf only to ſuch as are ſome way or other more remarkable than others: amongſt which I think I may reckon the *Quarry* at *Penford* in the Lands of Mr. *Fowler*, which lies in depth 14. or 15. yards as has been ſeen by many, ſome of the workmen aſſert it at leaſt 20. yards thick, indeed they certainly know no bottom; the deeper they go the finer the grit; and for colour it is *whitiſh* at the top, then *rediſh* to 10.

or

or 12. yards, and then whiter than at top, for 5. or 6. yards more; it being all of it good *weatherſtone*, but not enduring the *fire*. As the ſtone of the *Quarry* in *Purton* park will, which is both a good *weather* and *fire ſtone* too, and ſo free from *clefts*, that a ſtone may be had of any Magnitude, as big as any of the *Guglia's* at *Rome*, nay I was told by one of the *Maſons* that he could undertake to get a ſtone at this *Quarry* fifty yards long, and that but two or three years before I came thither, they actually had gotten one (though they had no occaſion for any ſuch) about fifty foot long: of theſe large ſtones there are very good examples in *Purton* houſe belonging to the right Worſhipful Sr. *Walter Wrotteſley* Baronet, a Perſon of that great reputation in his *Country*, that his memory will never dye; till Loyalty and Integrity, Prudence and Ingenuity, be overborn by Faction, Impudence and Ignorance, and become unregarded, and of no eſteem amongſt us.

33. The *Quarry* at *Bilſton* is alſo very remarkable, it lying in beds in *plano Horizontis*, one under another, 12 beds deep; every bed being thicker then that above it, an inch or more; ſo that the lower bed is about a yard thick of which they make *troughs*, *ciſterns* &c. Some of the *Tables* of *ſtone* riſing ſo large and even, that Mr. *Hoo* of *Bradeley* got one here 8 yards long, naturally ſo very even, that in the whole length it did not *bevel*, or depart from a true *level*, above an inch. Some of the *ſtone* dug at this *Towne* is alſo curiouſly ſtreaked black, whereof there are elegant patterns, in the *Garden* at the right worſhipful Sr. *Henry Gough's* at *Pury-Hall*. I met likewiſe with a white ſtone thus mark't black, uſed in the building of the new *Dormitory* at *Kingſton* Church by the right Worſhipful Sr. *Simon Degg* Knight, but whereabout it was dug I muſt confeſs I forgot to ask, but ſuppoſe it could not be very far off.

34. The ſtone of the *Quarry* above mention'd at *Purton* ſerves alſo for *Grinding ſtones*, which gives me occaſion to treat of them next: which I find are eſteemed ſo much the better, by how much they are made of a finer *Grit*: whence it is that the *Grinding-ſtones* dug near *Biddulph-Hall* of a red larger grit are not accounted ſo good as thoſe dug at *Heaton*, a Village between *Swithamley* and *Ruſhton Spencer*, which are of a grayiſh colour, and of a fine ſmall *grit*. But not ſo fine as thoſe dug at *Bilſon*, which are of ſo ſmall a grit, that they are uſeful only for fine thin edg'd tooles, ſuch as *Knives*, *Ciſſers*, *Razers*, &c. and are better than the *Grinding-ſtones* brought out of *Derby-ſhire*, which are uſed chiefly for thicker edg'd tooles, ſuch as *Axes*, *Hatchets*, *Chiſells*, *Adds*, *Twy-bills*, &c. Or thoſe lately found, about 5 years ſince, at *Over Arley*, near the Parſonage houſe, and in the *manor* of *Heck-ſtones* adjoyning to the glebe land,

land, which yet ſerve for moſt ſorts of *Sithe-grinders*, *Smiths*, or *Cutlers* wares, eſpecially for thoſe of the thicker edges, ſo that the trade to *Darby ſhire* for ſuch *Grinde-ſtones* is quite ceaſed in theſe parts. Alſo in the lands of Mr. *Perſehouſe* at *Cotwall-end* they dig excellent grindingſtones, as good as thoſe at *Bilſon* for thin edge tooles; and on the Windmill-bank at *nether-Gournall* in the ſame pariſh of *Sedgley*, they dig others for thick edg'd tooles, which muſt be of a grit both harder and courſer; whereof ſome have proved as good as the *Darby* ſtones. Whether they dig any *Grinde-ſtones* now at *Braunſton* or noe? I did not hear; though Mr. *Erdeſwick* informes us it was anciently famous for them [p].

35. Another ſort of *Grinding ſtones* are thoſe wee call *Milſtones*, the Grit whereof need not be ſo fine, provided it be *hard* and doe not *ſweat* in *moiſt weather*, which would both prejudice the *Meale* and clog the *Mill*. Of theſe ſome are made out of great *looſe ſtones*, others dug out of *Quarries*. Of the former there have many been made out of great round *pebbles* found on *Braden heath* between *Sherriff Hales* and *Blymhill*, and ſo there has at *Seaſdon*, where on the *Heath* there lye ſome *pebbles* ſo vaſtly great, that as I was told, there have 3 *Mill-ſtones* been made out of one of them. Theſe *Mill-ſtones* out of *Pebbles* they uſe for grinding *wheat*, and ſome think them not ſhort of the *Colen ſtones*. At *Mole Cop* in this County they dig them as in a *Quarry*, which they cleave from the rock with a great number of ſmall wedges, driven with as ſmall ſtroaks, leaſt the ſtone ſhould crack or flawe; when they have got it from the rock, they preſently binde it round with a joynted hoop of Iron, which they call a *Rivet-hoop*, and this they ſtraighten hard about it alſo with wooden wedges, driven in between it and the edg of the ſtone, that it breake not in the working.

36. Which it ſo frequently does notwithſtanding their utmoſt care, that there is but very few of them that are not made up of two or three pieces, thus bound together with a *hoop*; nay ſo very ſubject is it to crack and flaw, that whenever it happens that they finiſh one *intire*, yet it muſt be bound about thus with an *Iron hoop* to remain upon it even in the *Mill*, to preſerve it from falling aſunder in the motion. Nor is it any wonder that it ſhould be thus, ſince it conſiſts of a large angular ſhining *grit*, ſo knit together, that there are *interſtices* between the parts, which are fill'd with a kind of *mealy* ſubſtance; this ſome people fancy taſts like *meale*, and amongſt the *Workmen* the ſtone that ha's moſt of this (as it were by way of *ſignature*) is counted the beſt, though no queſtion it muſt needs be ſo much the weaker. and yet as weak as it is, it lyes well enough in building, the pariſh

[p] *Mr Sampſon Erdeſwicks view of Staffordſh. M. S. in Braunſton.*

Church of *Biddulph*, which is a reaſonable fair one, being built with it. Theſe are ſeldome uſed for grinding of *Wheat*, becauſe theſe grind Bran and Meal altogether, whereas the blew ſtones only bruiſe the husk from the floore; but chiefly for *Rye*, *Barley*, and *Mault*, or for *ſhaling* of *Oates*: nor doe they ever uſe two of theſe *ſtones* together, but always pair them with a white ſort of *Mill-ſtone* brought out of the *Peak*; the *Molecop*-ſtone being always the *runner*, and the *Darby-ſhire* ſtone, the *Legier*.

37. Which is all concerning ſtones of any peculiar uſe, unleſs that I may have liberty to ſuſpect, that at *Rowley Regis*, in the corner of a ground formerly part of the *lower Moores*, adjoyning to grounds call'd *Freebody's*, there muſt be that miracle of *Nature*, we call the *Loadſtone*: For that, one Mr *Deeley* about 10 year agoe being appointed to meaſure the lands there, for the right honorable *Edward* Lord *Ward*, found that in that place his *Needle* varyed ſo very much, that his work was out of order, which put Him to no ſmall trouble, till He began to ſuſpect what muſt needs be the matter. *Sept*: the 23. 1680 for further ſatisfaction, having procured the company of the ſame Mr. *Deeley*, I was willing to make the *experiment* over again, wherefore ſeting up a *ſtick* with a *hand-kerchif* on it at one end of the ground, and goeing to the other with my *Compaſs*, I found the *hand-kerchief* to bear upon ſuch a *point* of it; but removeing the *hand-kercheif* and *Compaſs* interchangeably, when I came to view the *hand-kercheif* upon the oppoſite *point* to that upon which I had ſeen it before, I found it wide of the *mark* by *ſix degrees*. So that upon conſideration of the matter, I could not imagine how this ſhould come to paſs otherwiſe than by the *Magnet*, unleſs by ſome old *Armour* that might be buryed hereabout in the late *civil War*: Which might eaſily be determined, and at which end of the *field* this matter lyes, whatever it be, that thus affects the *Needle*; were the true *Meridian* of the place firſt taken, and a *touch't Needle* hung upon a thred and carryed about: for whether it be a *Loadſtone-mine* that occaſions this difference; or ſuch *Armour*, or other *Iron*, that may lye hid hereabout; the *Needle* will diſcover it by *diping*, whenever it comes over it, or any where near it.

38. After the *ſtones* of a reſtrained peculiar uſe, let us next conſider thoſe of no uſe at all, at leaſt that are put to none; which yet poſſibly may not altogether be unworthy our *admiration*, though no tolerable account, can be given of the condition, or preſent ſtate they are in: and ſuch are the vaſt *Rocks* or *Roches* as they call them, that bear no graſs, but here and there a turf in ſome cleft or hollow, but ſtanding as bare as a ſtone wall; ſome of them kiſſing the *clouds* with their tops, and running along in mountanous

ridges

ridges for ſome miles together. The firſt of theſe I met with was on *Wetley Moore*, which at a diſtance I took for ſome prodigious *ruins*, theſe repreſenting them as much bigger than truth, as the *Florentine ſtones* doe it, leſs: but when I came to *Leeke*, and ſaw the *Hen-Cloud*, and *Leek Roches*, I was quickly undeceived, though my *admiration* was ſtill heighten'd to ſee ſuch vaſt *rocks* and ſuch really ſtupendous *Proſpects*, which I had never ſeen before, or could have beleived to be, any where but in *picture*: and that which yet further increaſt my *wonder*, was how they ſhould come thus bare, having no turf upon them, or earth to produce one: which whether ſo from the *Creation*, or uncoverd by the *flood*, or the perpetual *deterrations* which have happend ſince upon *rain*, to all *Mountanous* parts, as was not irrationally conjectur'd *Chap.* 3. §§ 11. 12. of this *Hiſtory*, is hard to account for. Though poſſibly too, ſome of them may come to be thus, firſt by cutting the turf from them which they uſe for *feuel* much in this *Country*, and then the *deterrations* by *rains*, will eaſily anſwer for the reſt.

39. And yet ſo far are theſe *Roches* from any further *diminution*, that I think ſome of them carry ſuch evident marks of growth, that I cannot avoid beleiving it ſo. For in ſuch *rocks* as theſe, as you paſs through the hollow way at little *Sandon*; and in another cut in the *rock*, about mid-way betwixt *Draycot* and *Chedle*; there are *pebble ſtones* plainly included in the *body* of the *rocks*, and ſo there are in the *rocks* near *Alveton Lodg* by the way ſide as you paſs thither from *Wooton*: whence it muſt be concluded that theſe *pebbles* muſt have had a being before the *rocks*, and that the *rocks* themſelves grew to be ſuch, ſince that time. But the moſt indiſputable evidence of the *growth* of ſuch *ſtone*, we have from the ingenious Mr. *John Beaumont*, who tels us that at *Daulton* on the South ſide of *Mendip*, the Workmen *ſawe* out of great *blocks* of ſtone of four or five Tun weight, dug in the *Quarrys* there, large pieces of fair cleft *Oak* included in the midſt of them[1]. This I ſay is as indiſputable a *proof* as any I have met with, except one at *New-Caſtle* under *Lime* in this *County*, where at a place called the *Gallow-tree* (the ancient place for the execution of the *Malefactors* of that *Towne*) there was found, within memory, in a firm *block* of *ſtone* dug out of the *Quarry* there, an intire *Skull* of a *Man* with the *teeth* in it, *&c.* whereof Mr. *Weever* an *Alderman* of the *Town*, told me he had *one*, long in his poſſeſſion: which place when uſed for *executions*, 'tis like might be nothing elſe but *ſandy Land* wherein they uſed to bury the executed bodies, which in proceſs of time has thus turned into *ſtone*.

40. The variety of *Caverns* and great *clefts* in theſe *Roches*, are

[1] *Philoſoph. Collect.* Num. 2.

alſo worthy my recounting, and the *Readers* notice, whereof ſome are *dry*, and others receive *water*: to the former of theſe belong the *Caverns* at *Holloway* in this *County*, near *Stourbridg* in *Worceſterſhire*, cut out of the living rock into divers *partitions* and *offices*, with *holes* forth at the top inſtead of *Chimneys*; wherein ſeveral people of meaner rank have their conſtant *habitations*, much after the manner of the *Æthiopian Troglodites*, who are a *ſubterranean Common-wealth* bordering upon the *Arabian Sinus* and the *Empire* of *Habeſſia*. But we need not run ſo far for *Examples* of this kind; for we are told of ſuch in *Italy* near *Viterbo*, at *Buſchet* in the *Iſle* of *Malta*;[1] and at *Nottingham* here in *England*. Near *Peakſtones* in the pariſh of *Alveton*, under *long-Hurſt* hill, there is alſo a hollow in the *rock* call'd the *Thurſe-houſe*, where a *family* now lives, and wherein about 4 or 5 years ſince lived one *Helen Millard* a widdow woman of about 115 years old, who had ſhe not chanced to dye a violent death by fire, might have lived much longer. There is alſo another *Thurſhouſe* or *Thurſehole*, ſometimes call'd *Hob-hurſt Cave*, near *Wetton* mill (where the *Manyfold* falls firſt into the ground, on the *Eaſterly* ſide of the dry Chanell,) which goes into a great *Mountain*, from the mouth to the further part, about 44 yards and is in the middle, as near as I could gueſs, about 30 foot high, the *roof* being ſupported by a rough *natural pillar*, which alſo in a manner divides it into ſeveral *partitions* or *rooms*: where I was ſhewed in the *roof*, the natural *effigies* of a *Man* with a *curled beard*, looking out of a *hole*, not very unlike what it was ſaid to repreſent, though I ſuppoſe wholy caſuall, and never deſigned by *nature*.

41. But a little way from this, on the *Weſterly* ſide on the ſame dry Chanell in the *Lordſhip* of *Grindon*, belonging to his *Grace* the *Duke* of *Albemarle*, there is a great hole through *Yelperſley Tor*, that goes from the bottom to the top, at leaſt 40, if not 50 yards high. Under *Kinfare edge* there is alſo a hole going into the rock, wide at firſt, but after low and narrow, call'd *Mag* a *Fox-hole*, for that *foxes* here uſe to ſhelter themſelves; & at *Kinfare Towne*, by the *River* ſide near the bridg, there goes another *hole* into the *rock* a great way, call'd *whirley hole*, from the *Eddy* of water the *River* makes at the mouth of it; how far either of theſe *holes* goe is very uncertain, but 'tis the tradition of the *Towne*, that though their *mouths* are at a long *miles* diſtance, yet that they meet under ground. And now I am come to *Caverns* that receive water, I muſt not forget thoſe that receive the Rivers *Manyfold* and *Hans*, eſpecially thoſe under *Yelperſley Tor*, which are very large ones, that will receive a *Man* ſtanding upright; nor the rocky *indraughts* under *Cauldon* Low,

[1] *Athanaſii Kircheri Mundi ſubter. Tom.* 1. Lib. 8. §. 4. cap. 3.

Ribden,

Ribden, and *Reeden*, that ſwallow the *waters* of the *landfloods*, that run violently from the *Hills* thereabout, though mention'd before Chap. 2. §§ 97, 98. of this *Hiſtory*. To which let me add, the ſtupendous cleft in the rock between *Swithamley* and *Wharnford* commonly call'd *Lud-Church*, which I found by meaſure 208 yards long, and at different places 30, 40, or 50. foot deep; the ſides ſteeped and ſo hanging over, that it ſometimes preſerves *Snow* all the *Summer*, whereof they had ſignal proof at the *Town* of *Leek* on the 17 of *July* their *Fair day*, at which time of year a *Wharnford* Man brought a *Sack* of *Snow* thence, and poured it down at the *Mercat Croſs*, telling the people that if any body wanted of that *commodity*, he could quickly help them to a 100 load on't.

42. Beſide the *Stones* that ſerve the *neceſſities* of *Mankind*, there are others in this *County* that will ſerve to *adorn*, both his *Buildings* and *Perſon*; ſuch as *Alabaſter*, wherewith the *Chore* at *Lichfield*, joyntly with *Cannel-coal* (as I noted before) is delicatly paved in imitation of *Marble*[f]: as well indeed it may, rather with this, than any thing elſe; *Alabaſter* being accounted amongſt many of the *Naturaliſts* to be *Marmor incoctum ſive imperfectum, quod ſi cultro ſcindi poſſit, gypſum rectius dixeris*, ſays *Joh. Schroder*[g]. Of the latter ſort whereof, I could hear of none in this *County*, that dug near *Frodſwell Hall* (where there is a ſmall *vein* fit only for *flooring* rooms, not thought worth the purſueing) and in *Heylinds* park, where too it was anciently gotten; being, as I was inform'd, as hard, as that which is gotten *South* of *Marchington* Church, which being likewiſe but of a *courſer* kind, is prepared for making *plaiſter* for *floors*, *ſeelings*, and the *walls* of *Needle-work houſes*, in this *Method*: Firſt they lay on the ground a *ſtratum* of *wood* (which is beſt) or a load of *wood* and *coal* mixt together, upon which they pile as much rough *Alabaſter*; then fireing the *wood* they let it burn together till 'tis out, which makes the *Alabaſter* ſo ſoft and brittle, that it needs only *thraſhing* to reduce it to *powder*, the greater parts whereof being ſeparated from the ſmaller by a *ſeive*, the former mixt with *water* are uſed for *flooring*, and the finer for *ſeeling* and *walling* of *Houſes*.

43. When they lay their *floors* whether for *dwelling*, or *Mault-houſes*, they wet a whole tub full and throw it down together; but when they *ſeel* or *parge* with it, they wet it by degrees, which they call *gageing*; and in both caſes lay it on, and ſpread it as faſt as they can, for it hardens, (as *Plaiſter* of *Paris*) in a very little time: the *Walls* and *Seelings* made with it having this convenience, that they are preſently ſweet, having nothing of the ill ſmell, of thoſe made with *Lime* and *hair*; and the *walls* of their *houſes* en-

[f] *Chap.* 3. §. 31. [g] *Joh. Schroderi Pharmacop. Medico-Chym. Lib.* 3. *cap.* 8. §. 2.

during like *ſtone*, if the *plaiſter* fall not out from between the *Timber*, as it ſometimes does for want of *grooving* it round within ſide before the *plaiſter* be laid on; which if done, it enters the *grooves* whilſt it is ſoft, and cannot any way fall out of them, when once it is hardened.

44. This ſort of *Alabaſter*, but yet of a *courſer* ſort, is found alſo at *Coton* under *Hanbury*, and there has of it been dug at *Draycot* in the *clay*: indeed the whole bank of *red Marle* between the *Forreſt* or *Chaſe* of *Needwood*, and the River *Dove*, from *Marchington* to *Tutbury*, has *Alabaſter* in it; but that at *Caſtle-Hays* is incomparably the beſt, of which they make *Grave-ſtones*, *Tables*, *Paving-ſtones*, *Chimney-pieces*, *&c.* and in ſmaller things, *Mortars* and *Salts*: they torne it alſo into *Candle-ſticks*, *Plates*, and *Fruit diſhes*, or whatever elſe the *buyer* deſires: in ſome of it there are *veins* of a dirty red colour, which yet are not very unſightly; but they have a ſort which is *harder* and *ſtronger* than the reſt, bearing a better *poliſh*, and finely water'd with a *blewiſh* colour, much eſteemed by *Artiſts*, it making as good work almoſt as *Marble*, upon which account it is carryed hence at a great charge, and made uſe off in ſome of the *choiſeſt works*, in many parts of the *Nation*.

45. Nor have they only in this *County imperfect Marble*, but the perfect too, and that of different kinds; ſome of them exceeding any of their *Species* (as I have been inform'd by *Artiſts*) that we yet know of, that have been brought from beyond *Seas*; whereof too, there is ſo very great *quantities* (were there but tolerable portage) that it would have ſufficed, I dare ſay, to have rebuilt *London*: there being whole *Mountains* of it in the Lordſhip of *Grindon* belonging to his *Grace* the *Duke* of *Albemarle*. It is a *Rance Marble* i. e. of a *white*, hard, ſhining *grit*, ſtriped *red*; *Yelperſly Torr* (as one may ſee where the River *Manyfold* enters it) and moſt of the *Hills* thereabout, ſeeming to be all of this *Marble*; which receives ſo good a *poliſh*, that it ha's been thought fit for *Chimney pieces*, *Monuments* &c. though I ſcarce think any has been made uſe of for this purpoſe, ſince I firſt diſcover'd it. And at *Stanſop*, not far off, in the pariſh of *Alſtonfield*, I was ſhewed a *grey marble* not inferior in its kind, by Mr. *Jackſon* of that *Village*, who told me there were alſo *quantities* of it for any purpoſe, though never yet made uſe of.

46. Add to theſe a very hard black ſhining ſtone found at *Powke-hill* near *Bentley Hall* belonging to the Worſhipful *Thomas Lane* Eſq; which upon *poliſhing* proved a tolerably fair *black Marble*, all the fault that the *Artiſts* could find with it, being a *hard pin* as they call'd it, which renders it ſcarce worth the labour to work it: However *burnt* and *pouder'd* it makes a very good *Emery*, as I

was

ſwas certainly informed by the ingenious *Jonas Groſvenor* of *Wolverhampton* Eſq; which way poſſibly it may turn to a better *account*, than to be workt as *Marble*. At *Rowley Regis* in the lands of the right Honorable *Edward* Lord *Ward*, I met with the ſame ſtone again, and ſcattered here and there all over the *Towne*: whereof yet there is one more remarkable than the reſt, about ½ a mile N. W. of the *Church*; as big, and as high, on one ſide, as many *Church Steeples*: at the bottom of which on the higheſt ſide, if one ſtamp with ones foot, it returns a hollow ſound as if there were a *Vault*, which made me ſuſpect that ſome great perſon of ancient times might be buryed here, under this *natural Monument* (for I ſcarce think ſo great a thing could be put here by *art*, it much exceeding thoſe of *Stonehenge* or *Aubrey* in *Wilts*) but diging down by it as near as I could (where the *ſound* directed) I could find no ſuch matter.

47. In and about the ſecond *Inlet* of *Manyfold*, under *Telperſley Tor*, I was ſhewed by the ingenious *Charles Cotton* Eſq; many of the block ſtones which they call *Crow-ſtones*, ſometimes intire of themſelves, and ſometimes growing on the *Limeſtone*; ſome of them wholy *black*, and ſome ſtreaked *white*; which *poliſht* ſo well, that I have ſeen them ſet in *Rings*, and have been taken at leaſt for the *black Achat* or *Melanoleucus* of *Aldrovand*[a]. And I had given me at *Wolverhampton* by Mr. *Richard Cumberlege*, a reddiſh *ſemiopake* Flint, found ſomewhere there about, ſo very agreeable to the deſcription of the *Sardachates* of the *Lithographers*, that I have been inclined without fear to pronounce it the ſame. Which brings me next to treat, of the *tranſparent ſtones*; whereof the two fineſt and beſt I met with in this *County*, were in the ſame *Town*, one ſet in a *Ring* of Mr. *Jonas Groſvenour's*, of an excellent *luſter*, being part of a large *tranſparent pebble* found on *Coven* heath; and the other worne alſo in a ring by Mr. *Henry Bracegirdle*, *Sacriſt* of the *Collegiat Church* of *Wolverhampton*, of an *Amethyſtine* violaceous colour, and a genuin luſter, which was found at *Barrow-hill* in *Penſnet* Chace, where there have many other *tranſparent ſtones* been heretofore dug of an *dodecaedrous* figure, cut off at the top much like *natural Chryſtal*, but ſomewhat harder. At *Fetherſton* the ingenious Mr. *John Huntbach*, was pleaſed to beſtow on me, a *tranſparent pebble* of a peculiar form; and the Worſhipful *Tho. Broughton* of *Broughton* Eſq; ſhewed me another of the ſame *kind*, but different *forme*, which belong not to this place; but are only mention'd here, to give me an appoſite tranſition to the next *Chapter*, of *form'd Stones*.

[a] *Ulyſ. Aldrovandi Muſæi Metall.* Lib. 4. cap. 1.

CHAP.

CHAP. V.

Of Formed Stones.

1. ALL *inform'd Stones* whatever, being upon no ſlight grounds, thought chiefly to have their *Origin* from the mixture of *Salts*, it may much more certainly be concluded of thoſe which are *formed*; for as much as all *figure* (as has fully been ſhewn elſewhere[a]) ſeems wholy to be attributed to that *principle*: the *mineral Salts* in the *Earth* being no leſs buſy and luxuriant in production of *formed* bodies there; than the *volatile ones* in the *air*, in the pleaſant *figurations* they make in the *Snow*, as has been ſhewn by *Des Cartes*[b], Mr. *Hook*[c], but much more fully by my worthy Friend the Learned and Ingenious Mr. *William Cole*, Surveyor of his Majeſties *Cuſtoms* in the Port of *Briſtol*, who 'tis hoped will ſpeedily oblige the *World* with his curious remarks upon that *Subject*, and many others. The *mineral Salts*, I ſay, are no leſs exerciſed in the curious *formation* of bodies in the bowels of the *Earth* and *rocks*, than the *volatile ones* in the *Heavens*; for it ſufficeth it them not to repreſent only *ſublunary* things, but *celeſtial* ones too, either by reflection, or in ſolid; as in the *Selenites* and *Aſteriæ*, both which though rarely found in this *County*, yet thoſe which I have met with here of each kind, are quite different from thoſe, I ever met with elſewhere.

2. The *Selenites* ſo called, not that it corporally contains the *figure* of the *Moon*, but only by repreſentation, if obverted to it in right angles, as it were in a glaſs; as it will the *Sun* as well, and therefore otherwiſe more rationally call'd *Lapis ſpecularis*; is ſo very rare in this *County*, that I could heare of it but in two places, *viz.* at *Hartley green* and the village of *Slindon*, where it is dug in the Marle-pits: from the latter of which places I had a piece given me by Mr. *J. Serjeant* of *Mill-Meeſe* of a different figure from all thoſe in *Oxfordſhire*: for the Stone *Selenites* though it have nothing of the ſhape of the *Moon* in any of its *phaſes*, yet it is commonly found in ſome *certain figure* always agreeable to the *Salts* of the body wherein it grows, as it does at *Slindon* in a *Cubico-Rhomboideal* form, all the pieces of it being conſtantly *Hexaedra* of equal *obliquangular* ſides, or *oblique angled Parallelepipeds*, as in *Tab.* 11. *Fig.* 1. and upon that account as was conjectured in *Ox-*

[a] *Nat. Hiſt. of Oxfordſh. chap.* 2. §. 23, 24, 25. *and chap.* 5. §. 124, 125, 126. *&c.*
[b] *Des Cartes Meteror. cap.* 6. [c] *Mr. Hook's Micrograph. Obſ.* 14. *Schem.* 8.

fordſhire

fordſhire either formed by a *Tartarious Salt* in the *Earth*[d], or as the learned Dr. *Liſter* perhaps would rather conclude, out of an immature *vitriolic* one, having found the *Chryſtals* of that *Salt* ſomewhat of this *figure*[e]. As for *texture*, theſe of *Slindon* ſeem to have much the ſame, with the *Selenites* of *Oxfordſhire*, and upon ſlitting (like them) briskly to repreſent the vivid colours of the *Solar Rainbow*, only the *Scaiæ* of theſe are much more ſtrongly cohering, and not ſo eaſily diviſible, or into ſo thin *plates*, and therefore not ſo fit for many of the uſes it was antiently put to, menti-on'd in the *Hiſtory* of *Oxfordſhire*, whither to avoid repetition I referr the *Reader*.

3. But the forme of the *Selenites* is not ſo different from that of the *Moon*, but the *figure* of the *Aſteria* is on the contrary as agreeable to that of a *Star*, as we commonly paint them; all of them being branched with 5 principal *Rays*, of equal length, ſhape, and make; all iſſuing from a *Center*, which is either ſolid or hollow, where they joyn in *angles* of 72 *degrees*. Of theſe, as of the *Selenites*, I met with very few, and but at two or three places, *viz.* at *Beresford* near the Seat of the moſt ingenious Mr. *Cotton* in the rocks by the *Dove* ſide; in *Willmon*-field, betwixt *Heatley* and *Bagots Bromley*; and on *Newton*-hurſt, and *Harley* field, near *Abbots-Bromley*; and theſe all of them differing in ſomewhat or other, from all thoſe deſcribed in my *Hiſtory* of *Oxfordſhire*, and by the moſt accurat Dr. *Liſter* in the *Philoſophical Tranſactions*[f]: for though they are found here heapt upon one another in *Columns*, all ſeeming to be fragments, and no intire bodies, ſome having 3, ſome 4, and ſome 12, or more *joynts* as in *Tab.* 11. *Fig.* 2. 3. 4. every joynt conſiſting of 5 *angles*, and iſſuing from a *Center*: yet none of them ſeem to be made up of *lamellæ* or *plates* lying obliquely to the *Horizontal* poſition of the *Star*, as thoſe in *Oxfordſhire*; and ſome of them having their *angles* ſo very ſharp, and conſequently their ſides deep channell'd, that they ſeem, moſt of any thing, to repreſent the *rowel* of a *Spur*, not admitting any *Sculpture*, or indented *ſuture*; and thoſe that *doe*, of a quite different *kind* from any yet deſcribed.

4. The firſt kind whereof is carefully repreſented *Tab.* 11. *Fig.* 2. ſtanding in a *quinquangular* caſe in a flinty ſort of ſtone*, the *Rays* iſſuing from a *ſolid Center*, of a coal black colour, not bigger than an ordinary *pin*, yet plainly a flat *quinquangle*, the angles of this inner one, not pointing againſt the ſharp *Rays* of the outer, but againſt the deep *channels* between them, both being ſmooth joynted, without any *hatching* or *engravement*. The ſecond exhibit-

[d] *Nat. Hiſt. of Oxfordſh. chap.* 5. §. 130. [e] *Martini Liſteri M. D. de fontibus Med. Angl. Exercitat. pr. cap.* 5. [f] *Philoſoph. Tranſact. Numb.* 112. * *Like the* Pentagonus of Lachmund Ὀρυκτογρ. §. 3. cap. 18.

ed *Fig.* 3. is indeed a flat, not hollow-ſided piece, ſuch as repreſented to us by Dr. *Liſter* * in the *Philoſophical Tranſactions Numb.* 112. *Tab.* 2. *Fig.* 5. 8. 11. but the *hatchings* of it are very different from all his, and any I have yet elſewhere ſeen, as the *Reader* may ſee expreſt *Tab.* 11. *Fig.* 3. where there is one principal *radius* extending it ſelf from the *Center* to the extremity of each *angle*, with oblique lines iſſuing from it upwards, ſo that it not unnaturally repreſents ſo many *boughs* of a *Tree*. The third deſcribed *Fig.* 4. is alſo flat-ſided, but the *joynts* or *internodia* all unequal, one being always more protuberant than his neighbour, and ſo alternatly through the whole *column* of them; which though a pretty large and long one, conſiſting of 12 *joynts*, the hollows of each angle are neither *hatch't* on the top, nor is the *column* bent, or the leaſt inclining, as commonly thoſe are which have any conſiderable length. Concerning which, I have little more to add to what is ſaid in *Oxfordſhire*, but that their admired quality of *moving* in *Vinegar*, ſeems to have been known to *Roger Bacon* near 400 years agoe, who in one of his *Epiſtles ad Pariſienſem*, mentions a *Stone* that would run in *Vinegar* *.

5. Next the *formed ſtones* relating to the *heavenly bodies* (in the handling whereof though in a particular *Chapter*, I ſhall obſerve the *method* of the whole *Eſſay*) I deſcend next, to ſuch as are thought at leaſt, to come from the *inferior heaven*, to be generated in the *Air* amongſt the *Clouds*, and diſcharged thence in *thunder ſhowers*, whence they are termed by Authors *Brontiæ* and *Ombriæ*: whereof I met with one in this *County*, in the hands of the Worſhipful *Thomas Broughton* Eſq; (which cannot be ſo well referr'd to any other *Species* of *natural bodies* that I yet know of) that though it have no *Umbelicus*, *Modiolus*, or *Center*; or *rays* made up of *points*; or *tranſverſe lines*; or *points* ſurrounded with ſingle, or double *Annulets*; as thoſe in *Oxfordſhire*: yet is a much finer ſtone than any of them: it being a *regular ſolid Hemiſphere* (which may be apprehended well enough without a *Cut*) as tranſparent as *Chryſtall*; and much harder, moſt likely, of any ſort, to be of the *pebble-kind*. As I think I muſt alſo reckon a more oblong ſort of *tranſparent Ombriæ*, of a *triangular* form, near two inches long, and an inch broad; the bottom and ſides not flat, but protuberant, and carryed up round at the ends, till meeting with the top ridge; the *angles* not ſharp like the *Priſmaticall* glaſs, nor repreſenting any of thoſe vivid colours though held to the Eye in the due poſture; but more obtuſe, as engraven *Tab.* 11. *Fig.* 5. which

* *This worthy Gent. ſince the printing the begining of this* Hiſtory, *upon account of his extraordinary* Merit, *had a* Diploma *ſent him for his* Doctors degree *in the* Faculty *of* Phyſick, *from the* Univerſity *of* Oxford, ex mero motu, *without his knowledge or ſeeking.* * *Ad Pariſienſem. Epiſt.* 6.

was

was found near *Fetherſton* in this *County*, and given me by the ingenious and moſt obliging *Gent.* Mr. *John Huntbach* of the ſame *Village*. Theſe tranſparent pebbles are ſometimes alſo found in a *globular* forme, whereof the moſt exquiſitly tranſparent, without any *blemiſh*, was ſhewn me by the virtuous young Lady Madam *Ann Bowes* of *Elford* in this *County*, in whoſe *Cloſet* I take it (amongſt many others) to be a principal *rarity*.

6. I ſaw another of theſe expreſs't *Fig.* 5. found near *Lichfield*, in the hands of Mr. *Zach. Babington* of *Whittington*, and there are many of them in the *Aſhmolean Muſæum* at *Oxford*, and in that of the *Royal Society* at *Greſham College London*. They are not found in digging, either amongſt *Gravel*, or in *Quarries*, as moſt other *form'd ſtones*, but upon the *ſurface* of the *earth*, as the ingenious Mr. *Beaumont* alſo ſays they are in *Somerſetſhire* and *Gloceſterſhire*, in the *roads*, where the earth is *bare*; and produced, as he thinks, in clear Evenings by a *coagulation* of *dew* falling on *nitrous ſteams*, as the *hexangular Chryſtalls* are obſerved to be, by *M. Antonino Caſtagna*, and *P. Franciſco Lana*, at a place called *Mezzane* in the *Val Sabbia* in *Italy*, only in certain dry places, naked and bare of all *greens* [g]: and perhaps as thoſe *octaedrous Chryſtalls* are, mention'd by *Scheffer* to grow upon the dry rocks in *Lapland*, which the people of that *Country* uſe inſtead of *flints* to ſtrike fire with [h]. Whether this be the true method *nature* uſes in the production of theſe *ſtones*, though I dare not pronounce; yet it moves me not a little, that the *hexangular Chryſtalls* of the *Val Sabbia* being all gather'd from thoſe bare and ſteril places overnight, there will be others found next morning, whenever there happens to be a *ſerene* and *dewy* Sky. Howbeit, they ſtill come from the *inferior heaven*, and are placed here for a much better reaſon than ever was thought of before; and moſt commodiouſly have afforded me an apt tranſition from the *heavens*, into the *Atmoſphere* or inferior Air.

7. Which though thought incapable till now of giving any *figure* to *ſtones*, yet ha's many of its *Inhabitants* in part, if not in whole, repreſented in them; which before I deſcend to thoſe belonging to the *waters*, I think ought to be conſider'd here. Whereof that which deſerves the firſt place, is a *Perdicites*, which I gather'd in the Horſe-way near *Hollingbury-Hall*, the Seat of the truly Loyal and Valiant *Gent.* Captain *Richard Minors*, a perſon of approved *courage*, from his youth upwards, both at *Sea* and *Land*; which I call a *Perdicites*, not for the ſame reaſon other *Authors* doe, for this has nothing of the colour of the *feathers* on a

[g] *Philoſoph. Tranſact. Numb.* 83. [h] *Joh. Scheffer's Hiſt. of Lapland Chap.* 33.

Partridges breſt[i], but that *in ſolido* it repreſents a *Partridges* Skull, in the true ſhape and bigneſs, having the *Eyes* and ſhort *beak*, and hollowed behind, juſt as if the brains had been taken out, as moſt faithfully exhibited *Tab.* 11. *Fig.* 6. To which I muſt annex another pretty ſtone, belonging alſo to the *feather'd Kingdom*, found near *Church-Eyton*, and beſtowed on me by the *Schole-Maſter* there, which from its moſt accurate reſemblance of a *Pullets heart*, with the fat near the *baſis* of it, and the *Coronary Veſſels* deſcending from it, as moſt exactly delineated *Tab*, 11. *Fig.* 7. I think I muſt call *Alectoricardites*, this being a more reſtrained name than the *Anacardites* of *Aldrovand*[k]. Both which alſo ſeem to be of the *pebble* kind, but whether they ever were the *deſignes* of *nature*, or but *caſualties* only, there being no more of their kind, I ſhall not diſpute; but leave them wholy to the determinations of each *Readers* judgment.

8. As ſome ſtones have their *figures* from *aerial waters*, or *dews*, falling on *nitrous ſteams*, ſo there are others as likely *formed* by ſuch *ſteams* and *ſubterraneal waters*; and ſuch I take the *Chryſtals* to be, found in diging in *Barrow-hill* in *Penſnet-Chaſe*, belonging to the right Honorable *Edward* Lord *Ward*, which I have not ſcrupled to ſtile *Chryſtalls*, becauſe many of them are compoſed of two *hexagonal Pyramids*, & an intermediat *Column*, likewiſe *hexagonal* as in *Tab.* 11. *Fig.* 8. which according to *Steno*, is the very definition of a *Chryſtall*[l]. Some indeed of them ſeem only to be *dodecaedrums*, having only one *hexagonal Pyramid*, and the *hexagonal Column*; the other *hexagonal Pyramid* being hid in the rock wherein it grew, and left there, when the reſt was broken off; which were the ſtones mention'd §. *ult.* of the former *Chapter*; but they are all (I believe) really *octodecaedral* when gotten intire, and true *Chryſtals*: whenever therefore they appear otherwiſe, they may be ſuſpected to be imperfect, and broken either in the getting or ſome other way. They are ſometimes ſtained with a *violacious* colour, and perhaps may admit other *tinctures* ſometimes, though it was not my fortune to meet with any of them; but they are ordinarily found of their own *Chryſtalline* colour, the planes both of the *Pyramids*, and *Columns*, being all naturally poliſh't.

9. From the ſame *Origin* I think I muſt alſo deduce (becauſe not able to aſſigne any better) another ſort of *formed Chryſtals*, ſhewen me by the ſame noble *Lord*, though ſhooting forth of his *Limeſtone* rocks, near *Dudley Caſtle*; whereof his *Lordſhip* was pleaſed to favour me with that large pattern, deſcribed *Tab.* 11. *Fig.* 9. in which though the *Chryſtalls* are ſet very confuſedly, yet

[i] *Vid. Joh. Kentmanni nomenclat. rer. foſ. tit.* 5. *cap. de Avibus.* [k] *Uiyſſ. Aldrovandi Muſ. Metall. Lib.* 4. [l] *Nich. Stenen. Prodrom. de Chryſtallo. p.* 53.

they

they are all ſtrictly of the ſame figure, with that engraven a part, *Fig.* 10. made up as it were of 12. *Pyramids* joyn'd in baſe, all cut obliquely off at the top, makeing two *hexagonal hedræ* there, and 12 *Trapeziums*, which are ſo joyned by *pairs* at their broader ends, in the middle of each *Chryſtall*, where they are conſequently biggeſt; that the *acute Angles* of one combination, meet with the *obtuſe ones* of the oppoſite pair, and divide each *Chryſtall* with an indented ridg, as is evident to view in the forecited *figure*. Which though plentifull enough in the *Limeſtone* rocks here, yet is not mention'd, that I know of, by any *Author*.

10. But though theſe *Chryſtalls* may be ſuppoſed to have been made out of *water*, congealed by the *ſteams* of *niter* rather than any other *Salt*, becauſe of its *hexagonal* ſhooting; yet I could never hear that any of *theſe*, were ever found to include any *water* in the *Center* of them uncongealed, as ſome have been ſaid to doe. But there are a round or oval ſort of blackiſh or reddiſh ſtones, hollow and like a hony-comb within, found amongſt the *Iron Ore* at *Ruſhall*, not to be paſt by here, becauſe of their conſtant *forme*, though mention'd before *Chap.* 4. §. 18. that always hold a *red* or *white liquor* fluctuating within them, of a ſweetiſh taſt, greedily drank by the *workmen*; of which the Poet *Claudian*, might with as much admiration enquired, as he did of the *Chryſtall*,

Lymphæ, quæ tegitis cognato carcere lymphas,
Et quæ nunc eſtis, quæque fuiſtis aquæ;
Quod vos ingeniùm junxit? qua frigoris arte,
Torpuit & maduit prodigioſa ſilex?
Non potuit toto mentiri corpore gemmam
Sed medio manſit proditor orbe latex.
Sollers luſit hyems, imperfectoque rigore
Nobilior, vivis gemmat tumeſcit aquis.
Auctus honor, liquidi creſcunt miracula ſaxi,
Et conſervatæ plus meruiſtis aquæ[m].

in which verſes the very *Poet* ſeems to intimate, the true cauſe of theſe *Enhydri* (of which kind I muſt needs eſteem them) *viz.* that they are as it were but the imperfect works of *nature*, which ha's not yet perform'd its utmoſt; the included matter of theſe ſtones (as was fully proved in the place above cited) being nothing elſe but the matter of the *Iron Ore*, not yet coagulated into a *Metallic forme*. Which is all concerning *form'd ſtones* that purely relate to liquids, unleſs one may take a *verrucoſe ſtone* found near a petrifying Spring (of which more anon) in ſome lands of the right

[m] *Cl. Claudiani Epigram.* 6, 7, 8.

Honorable *Robert* Lord *Ferrers* between *Sandon* and *Gayton*, to be a ſort of *Stalagmites*, generated of pearles of dew *&c.* as in the *Hiſt.* of *Oxfordſhire*, whereof alſo there is a *Cut* ſo exactly repreſenting this of *Staffordſhire*, as well as thoſe of that *County Tab.* 3. *Fig.* 8. that it would be nauſeous to repeat either of them here again. Yet I muſt not paſs ſo by another of this kind, in the poſſeſſion of the right Honorable *Walter* Lord *Aſton*, which being of a very fine texture, almoſt as white as *Ivory*, and the beſt of the kind I ever yet ſaw, I have cauſed it to be repreſented here *Fig.* 11.

11. After *Stones* made out of *waters* and reſembling *inanimate figures*, come we next to ſuch as repreſent the *formes* of *Animals*, the Inhabitants of that *Element*; whether *Fiſhes* of the marine, or freſh-water kind: of the latter whereof (as in *Oxfordſhire*) I met with only one, and that of the ſame *ſpecies*, but of a different colour; it being a reddiſh yellow ſtone, found ſomewhere about *Clifton Camvill* by the Worſhipful *Francis Wolferſtan* of *Statfold* Eſq; not unaptly reſembling the middle part of a *Barbel*; like that mention'd in *Oxfordſhire*, and expreſt there in ſculpture *Tab.* 3. *Fig.* 11. But as for *ſtones* found like *Sea-fiſh*, though in this Mediterranean *County*, I have met with many, and of many ſorts; but chiefly reſembling *Shell-fiſh* of the *teſtaceous* kinds, both *univalves* and *bivalves*; and of the former of theſe, ſome *not turbinated*, and others again of the *turbinated* kind. Of the firſt ſort whereof, *viz.* Stones repreſenting *univalves* not turbinated, I had two beſtowed on me by the curious *Obſerver* the Worſhipfull *Walter Chetwynd* of *Ingeſtre* Eſq; ſo altogether unlike any of the living *Shell-fiſh*, that alone they are ſufficient to convince any unprejudiced perſon, that all theſe *formed ſtones* cannot be ſhaped in *Animal molds*.

12. The *Shell-fiſh* that comes neareſt them is the *Nautilus*, or *Coquille de Porcellain*, or as *Rondelet* calls it the teſtaceous *Polypus*, as may be ſeen by their draughts *Tab.* 11. *Fig.* 12. and 13. the place of the head being in the utmoſt *curle* of the ſtone, and the taile in the *center*, but ſo hidden and cover'd with the common coat, that the firſt *turne* is only viſible, as 'tis in the *Nautilus*: the *largeſt* of the two, ſeems alſo to have three or four obſcure joynts cuting the large outer turne in right angles, as ſome of the *Shells* of that *Fiſh* ſeem likewiſe to have (the texture of them all running that way) and the *leſſer*, two cavities or orifices; one, on each ſide the firſt *turne* as it paſſes under the place of the head toward the *center*, and ſtriated from a ſtraight line on the ridge of that turn, toward the place of the head, ſomewhat like a feather, neither of which agree to the *Nautilus*: nor is that part for the head near patulous enough in either of our *patterns*, to give ſufficient

ground

ground for any body to think them, ever to have been the *ſpoils* of that *fiſh*; not to mention how much they fall ſhort of the magnitude of the *Nautilus*, the biggeſt of the ſtones not exceeding a fair *Nutmeg*, and the leaſt ſcarce equalling an ordinary *field pea*.

13. Yet if any body will be ſo obſtinat, as to hold me to it, that theſe may, and muſt be reduced to the *Nautilus*; he ſhall and muſt excuſe me then, from ever yielding that the *Ophiomorphites*, or *Cornua Ammonis*, can owe their *figuration* to that *fiſh*, the *turnes* and *ribbs* of all theſe being numerous and protuberant, and viſible from the place of the *head* to the *center*, neither of which are found in the *Nautilus*, whereof I have met with an *Arch* of one ſort, amongſt ſeveral other intire ones, found in the *Lime-ſtone* rocks near *Dudley Caſtle*, given me by the right Honorable *Edward* Lord *Ward*, quite different from any of thoſe mention'd in *Oxfordſhire*[n], and therefore engraven *Tab.* 11. *Fig.* 14. its *ribbs* on each ſide joyning in large *protuberances* near the inner part of the *Arch*, and tending obliquely toward the convex part where they terminat in as large and diſtinct *protuberances*, but not right againſt one another, but the *protuberance* of one *ribb*, pointing between two others on the oppoſite ſide of the *ſtone*, and ſo alternately on each ſide: and theſe *protuberances* not ſeparated at the back, with a riſeing ridg as uſual, but with a *deep furrow* as expreſs't in the figure: whereof I have ſince met with another *Sample*, but not in this *County*, it having in proportion to the ſtone as deep a *furrow* in the back, though not interceding near ſo large *protuberant ribbs*. And theſe are all the *Stones* repreſenting *Univalves*, except the large *Strombites*, or turbinated Univalve, of *Georgius Agricola*[o], of a plain *ſuperficies*, found ſomewhere in this *County* and readily beſtowed on me by the generous *Walter Chetwynd* of *Ingeſtre* Eſq; which becauſe already deſcribed in *Oxfordſhire*[p], is omitted here.

14. But for ſuch as reſemble the ὀστρακόδερμα or *bivalvular Conchæ* there are great plenty here, as well of kinds as individualls, ſuch as *Cockles*, *Eſcallops*, *Oyſters*, *&c.* whereof there are ſome curiouſly lineated, and others plain, with but few or no ſuch Ornaments; and ſome of them found always ſingle with their *ſhells* a part, and ſome of them joyn'd. And all theſe (except a *Pectinites* or ſtone repreſenting a *Eſcallop ſhell*, found in *Ingeſtre* field, and at *Beresford**, and another reſembling the *Concha faſciata* of *Rondelet*[q], or rather the *Tellina* of *Buonanni*, found too ſome-

[n] *Nat. Hiſt. of Oxfordſh. chap.* 5. *from* §. 87. *to* 95. [o] *Agricolæ de natura foſſilium, Lib.* 7. [p] *Nat. Hiſt. of Oxfordſh. chap.* 5. §. 63. * *M. Liſteri Cochlitarum Angl. part.* 2. *memb.* 2. *cap.* 1. *tit.* 50. [q] *Gul. Rondeletii de Teſtaceis. Lib.* 1. *cap.* 33.

where

where thereabout, and moſt accuratly expreſs't by his 144 *Fig.*[r]) quite different from all thoſe deſcribed in *Oxfordſhire*, and from any of the *ſhells* I have yet met with, either in the *Aſtmolean Muſæum*, my owne ſmall *collection*, or any where elſe: So little ſeems *Nature* to have needed *Animal molds* for theſe productions. Witneſs firſt a ſort of *Oſtracites* or λιθόστρεον ſhewn me by the ingenious Mr. *Cotton* in the rocks near his houſe at *Beresford* by the *Dove* ſide, which though as large and ſhaped ſomewhat like *Oyſters*, yet certainly were never ſuch, their *ſtriæ* not being bent to the *commiſſure* as thoſe of all *oyſters* are, but deſcending quite contrary from the *commiſſure* to the *rim* as in *Tab.* 11. *Fig.* 15. having 3 or 4 *Lacunæ* or furrows much larger and deeper than the reſt, including 4 or 5, and ſometimes 7 or 8. of the leſſer *Striæ*, that deſcending from the *commiſſure* through the middle of the ſtone being always the biggeſt.

15. Theſe are always found ſingle with their *ſhells* a part, *ſtriated* without as in the aforemention'd *figure*, and ſome of them within too, having a deep depreſſion in the middle, in form of a *heart*, as in *Fig.* 16. But others there are ſomewhat of this kind, having always the deep *Lacuna* deſcending from the *commiſſure* over the middle of the ſtone, and only that large one, beſide the common ſmaller ones, found always with their two *ſhell-like ſtones* conjoyned like large *Cockles*, but the *commiſſure* never cloſe, having a large *ſtriated furrow* between the *roſtra* of the ſhells, as in *Fig.* 17. to which I can find nothing like amongſt the *Bivalves*, but the 73 or 80 of *Filippo Buonanni*[s], and the *Concha* πολυλεπτογγλυμος of *Fab. Columna*[t], but then neither of thoſe, have that *deep furrow* cuting the middle of their *ſhells*, as theſe of ſtone have. Upon which account too, and becauſe they have no manner of ſhew of ever having had *Ears*, of both, or one ſide; though their *Striæ* are equally ſpread from the commiſſure to the rim, they cannot be reduced to the *Pectines* or *Pectunculi*, i. e. to any ſort of *Eſcallop-ſhells*; nor can they be referr'd to the *Chamæ Striatæ Pectiniformes* of *Aldrovandus*[u], or the *Pectunculi* of *Belonius*, (which he expreſsly ſays have no *Ears*) nor the *Conchæ Striatæ*, or ſtreaked Cockle-ſhells; becauſe neither of an oblong figure, as all the former are; or bearing more toward the one, than the other ſide, as the *Conchæ Striatæ* doe: but ſpreading themſelves to ſo great a circumference that they almoſt abſolve a *ſemicircle*; the two uppermoſt *ſtriæ* wanting but little of meeting in a *right angle* at the commiſſure, which I doe not find agreeable to any ſort of bivalves.

[r] *F. Buonanni oſſervation' delle Chioccivle Parte ſeconda claſſe ſeconda.* [s] *Ibidem.* [t] *Fab. Columnæ Purpura. cap.* 11. [u] *Ulyſſ. Aldrovandi de Teſtaceis Lib.* 3. *cap.* 69.

16. The

16. The moſt critical Obſerver Mr. *Chetwynd* of *Ingeſtre*, gave me ſome others of this kind, much leſs than the former, ſcarce ſtriated at all, or having any other perfect *furrow*, but that deſcending through the middle of the ſtone, graven of its natural ſiſe *Fig.* 18. which I can no more parallel with any ſort of *Shell-fiſh*, than thoſe above mention'd. Nor with any yet deſcribed *formed ſtone*; that which comes neareſt them of any thing I have yet met with, is the *Pectunculites anomius* τρίλοβος of *Fabius Columna* [w], and Dr. *Liſter* [x], whereof I had two preſented me by the worſhipfull *Fran. Woolferſtan* of *Statfold* Eſq; about two inches round, ſo exactly anſwering thoſe deſcribed by *Columna* in their colours (one being wholly of a yellow, and the other of a blewiſh near the commiſſure, but more obſcure and yellowiſh toward the ſides) that he had not, I believe, two more agreeable *patterns*, when he made that deſcription. Theſe, I think indeed, have ſome ſmall reſemblance of the *ſtones* above mention'd, yet ſo far are they ſtill from ſeeming ever to have been caſt in *Animal molds*, that (as the worthy Dr. *Liſter* freely own's [y]) neither can theſe be match't amongſt the living *Conchilia*, no more than the others.

17. I met with the ſame alſo at *Dudley Caſtle*, found in the Lime-ſtone rocks, but theſe very ſmall, not exceeding the *Rouncival pea* in bigneſs; and yet ſtill leſs about *Ingeſtre*, ſome whereof not ſo bigg as the ſmalleſt *Vetch*; yet all conſiſting of two *anomalous valves*, of which (contrary both to *Columna* and Dr. *Liſter*) I take the moſt *proſuberant*, though hid at the commiſſure by the *roſtrum* of the other, to be the bigger; that having two long *Lobes*, and but one ſhort one: and the more *depreſſed valve*, the leſs; it having but one long one, and two ſhort ones: which ſhut into one another *alternatim*, as the teeth of the ſmaller *ſtriæ* doe, alſo betwixt one another: two ſtraight lines paſſing between the three longer *Lobes* as may be ſeen in the Cutt, *Fig.* 19. and 20. which I have cauſed to be graven, notwithſtanding they are to be found both in *Columna* and Dr. *Liſter* [z], thoſe *books* being in but few hands, and almoſt as rare as the *ſtones* themſelves, beſide, not well deſigned in either of them.

18. To which add two *Chamæ*, or *Couchites ſtriati*, found ſomewhere about *Ingeſtre*, and given me by the moſt ingenious *Walter Chetwynd* Eſq; Lord of the place; whereof one ha's both *valves* conjoyned, one of them being convex, and the other not flat but a little concave, as in *Fig.* 21. and both ſtriated from the commiſſure to the rim, ſomewhat like the *Pectunculus* of *Bellonius* [a]; only I doe not remember, that I ever met with any *ſhell-fiſh* whoſe *flat*

[w] *Fab. Columnæ Purpura, cap.* 15. [x] *M. Liſteri Cochlitarum Angliæ part.* 2. *memb.* 2. *cap.* 2. *tit.* 57. [y] *Ibidem.* [z] *Locis ſupra citatis.* [a] *Geſneri de Aquatilibus Lib.* 4. *p.* 813.

ſhell was thus excavated; much leſs whoſe *protuberant ſhell* was ſtriated within-ſide as that above mention'd *fig.* 16. and our other *Conchites* or *Chamites ſtriatus*, given me by Mr. *Chetwynd* which was found ſingle, ſet in a hard pebble, as exactly repreſented *fig.* 22. on which yet I lay not ſo much ſtreſs, as upon any of the reſt; becauſe the convex ſide being hid by the pebble, it may be argued, that this is only the bed of a petrifyed *Chama*, though I could not learn, that any ſuch thing lept forth it, upon the breaking the pebble.

19. Having done with the *form'd ſtones* relating to the *waters*, I haſten on (according to the Method I preſcribed my ſelf in the begining of this *Chapter*) to ſuch as bear any *ſimilitude* to *terreſtrial bodies*, and amongſt them, firſt of ſuch as belong to the *mineral Kingdom*; ſome of the *Ores* both of the noble & viler *Metalls*, having been found ſhot into certain *figures*: thus as I was told by Mr *Perſehouſe* of *nether Gournall*, a parcell of *Silver Ore* that was found in the hard rock in digging a well in his *Garden* (of the *Metall* whereof He ſhewed me a *tooth-pick*) was all figur'd like the *ſhells* of *Eſcallops*; nor need we much to wonder at it, if we reflect upon a relation of *Peter Martyr* Counſellor to *Charles* the *fift*, who expreſsly tells us that in *Hiſpaniola*, not only the Ore, but pure *native Gold* it ſelf, is found ſo naturally form'd, that it is thought to be a *living Tree* ſpringing and ſpreading from a root through the ſoft pores of the *Earth*, and puting forth *branches* even to the day it ſelf; ſhewing beautifull *colours* inſtead of *flowers*, round *ſtones* of *golden earth* inſtead of *fruit*, and *thin plates* inſtead of *leaves*: ſome of the *branches* being as ſmall as *threds*, and others as bigg as a *Mans finger*, according to the largeneſs or ſtraightneſs of the rifts or clefts of the earth or rocks, wherein it grows [b].

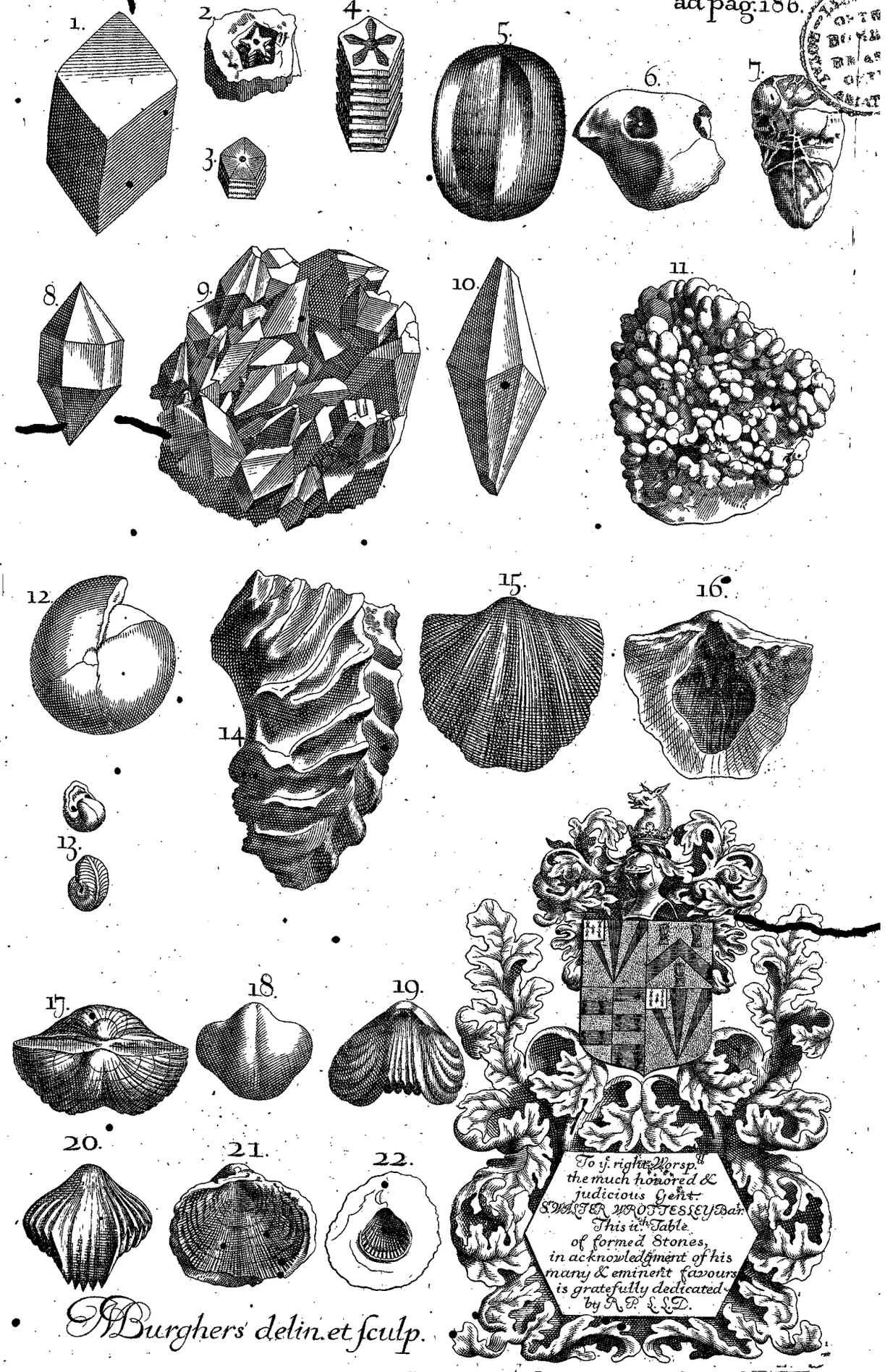
20. The truth of which *Hiſtory* is amply confirm'd by that noble Philoſopher the Honorable *Robert Boyle* Eſq; who tells us that He ſpake with a very skillfull and credible perſon, that being in the *Hungarian Mines* had the very good fortune to ſee a *Mineral* that was there digg'd up, wherein pieces of *Gold* of the length, and almoſt of the bigneſs of a *humanfinger*, grew in the *Ore*, as if they had been parts & *branches* of *trees* [c]. And the Reverend and learned my very good Friend Dr. *Robert Huntington*, *Provoſt* of *Trinity College* near the City of *Dublin*, has told me more than once, that he received it from very good hands, that *native Gold* has been thus found in the *form* of a *Tree* in *Habeſſia*, as well as *Hungary* and

[b] *Petri Martyris Anglerii de Orbe novo. Decad.* 3. cap. 8. [c] *Mr Boyles Sceptical Chymiſt.* p. 375, 376.

Hiſpaniola,

TAB. XI.

ad pag. 186.



To ye right Worsp.ll the much honored & judicious Gen.t WALTER WROTTESLEY Bar.t This ii.th Table of formed Stones, in acknowledgment of his many & eminent favours is gratefully dedicated by R. P. L. D.

N. Burghers delin. et sculp.

Hiſpaniola, whereof an excellent pattern, was ſent as a *preſent* from the *Emperor* of that *Country*, to the great *Mogul*. Nor are theſe inſtances ſo new, but ſomething like them was known as long agoe as *Virgil*, who ſeems to ſpeak of this matter more like a *Philoſopher* than a *Poet*,

——— *Latet arbore opaca*
Aureus & foliis & lento vimine ramus,

adding a little after,

——— *primo avulſo non deficit alter*
Aureus, & ſimili frondeſcit virga metallo *.

21. The ſame is alſo aſſerted by *Munſter* of *native Silver*, which He tells us has been found naturally ſhot in the *form* of *Trees*, *rodds*, *twiggs* or *hairs* [d], whereof I have ſeen my ſelf a tolerable *pattern*: But not ſuch an one as *Wormius* was poſſeſt of, given Him by the Lord *Stenon Beck* the Kings *Treaſurer*, which was an elegant *Maſs* of *native ſilver* 12 Ounces weight, that imitated a *Vine* with all its branches variouſly ſpread abroad, and embraceing one another, growing thick toward the root, and gradually tapering into the ſlendereſt twiggs and claſpers [e]: Or that other branched piece of of *Silver* of two Ounces weight growing out of a *Specular* ſtone, of a leaden colour without, but white within, alſo reſembling a *Vine*, brought Him out of the *Mines* of *Norway* by *Nicholaus Foſſius* [f]. Now if *Metallic* ſubſtances doe thus uſually take upon them the form of *Vegetables*; why not ſometimes may they not of *Animals* too, as well as other ſtones? though we doe not very often find *Hiſtories* of it: let that of *Valehius* in his *Commentary* upon the *Klein Baur* mention'd by Mr *Boyle* ſerve for all; who tells us that at *Maria Kirch* near *Strasburg*, a *Miner* upon opening the hollow of a rock, found a Maſs of pure *Silver* of 500 pound weight ſtanding upright in form of an *Armed man* [g]: a much ſtranger thing than that *Silver Ore*, ſhould ſhoot in the form of *Eſcallops*.

22 And as the *Ores* of the perfect and more noble *Metalls* ſometimes take upon them the formes of *Vegetables* and *Animals*; ſo thoſe of the baſer and more imperfect kinds, doe ſometimes ſhoot too into certain formes, but much more ſimple ones; which I have found true in this *County*, in the *Ores* both of the hard & ſoft *Metalls*. In the hard, which require ignition before fuſion

* *Pub. Virgilii Æneidos Lib.* 6. *v.* 136, 137. & 144, 145. [d] *Munſteri Geograph.* Lib. 1. cap. 9. [e] *Muſæi Wormiani* Lib. 1. § 3. cap. 3. [f] *Ibidem.* [g] *Mr Boyles Scept. Chym.* p. 365, 366.

(not to mention again the *Iron Ore* impregnated with the milky liquor found at *Ruſhall*, which is moſtly, if not always, of an oval figure without, and like a honycomb within[h]) In the Lime-work call'd *Radley* alſo in the pariſh of *Ruſhall*, and in thoſe North of *Dudley Caſtle*, in the very body of the ſtone they ſometimes find the *pyrites aureus* (which if torrefy'd, according to *Agricola* & Dr. *Liſters*[i] directions prove all *Iron Ores*) not only granulated, but ſometimes formed in *oblong ſquares*, or right angl'd *parallelpipeds* ſet irregularly in a common bed of *Limeſtone*, as in *Tab.* 12. *fig.* 1. which very pattern was found at *Radley*-work, & kindly beſtowed on me by Mr *William Strong* of *Harding* alias *Hawarden*, and is the third of *Geſner*, which He calls *pyrites quadratus altera parte longior* in oppoſition to the cubic one[k],

23 Which too in the Limeſtone hills of the *Moorelands* in this *County*, is frequently met with, about $\frac{3}{4}$ of an inch ſquare, of a purpleiſh colour, mixt with yellow ſhining parts without, but wholy gold-like ones within, ſuch are alſo found upon the *Woolds* in *Yorkſhire*, and reckon'd by Dr *Liſter* amongſt the *Iron-Ores*[l]. *Wormius* alſo tells us they have them at *Oſterdale* in *Norway*, but reputed there to be the *Ore* of *Copper*[m]. Whether ours be one, or th'other, I ſhall not diſpute, it being ſufficient to juſtify it's being placed here, if it hold either *Metall.* However they ſeem to be the true *Ludus Paracelſi*, which ſays *Helmont* is ſo termed, *quod tali, teſſaræ, aut Cubi formâ ſemper eruatur*[n], there being no other ſtone I have ever yet met with, near ſo agreeable: which *pulveriz'd calcin'd*, and mixt with a *circulated Salt*, and then ſet in a coole moiſt place to run *per deliquium*, and after digeſted *gr.* 2. till the *Ludus* ſwims like a thick *oyl*, upon the water contracted from the moiſt Air of the *Cellar*[o], is the great *Arcanum* againſt the *Duelech* or *lapis ſpongioſus*, generated in human bodies, of a middle nature between a *Tartar*, and the ordinary *Calculus humanus.*

24. The *Ores* of the ſofter *Metalls*, which have fuſion before ignition, doe alſo ſometimes ſhoot into a certain figure, witneſs a ſort of *Lead-Ore* given me by the Worſhipfull *Walter Chetwynd* of *Ingeſtre* Eſq; but found in *Ecton* hill near *Warſlow*, and ſent him, I think, by the ingenious Mr *Cotton*, of an *Octaedrous* form, made up of eight ſolid triangles, as in *Tab.* 12. Fig. 2. one of the acuminated parts being ſomewhat blunt where fixt to the rock. The ingenious Mr. *John Beaumont* jun. of *Stony-Eaſton* in *Sommerſet-ſhire*, informes us that *Lead-Ore* is often found in that *County* in a *pyramidal* form, much like the *Sparrs* that hang from the roofs of ma-

[h] *vid. ſupra* chap. 4. §. 18. *and* chap. 5. §. 10. [i] *Geo. Agricolæ de re Metallica.* Lib. 7. p. 194. & *M. Liſteri de fontibus med. Angl. Exercit.* pr. cap. 2. [k] *Conr. Geſneri de figuris Lapid.* cap. 1. [l] *M. Liſteri de fontibus Med Angl. Exercit.* pr. cap. 2. [m] *Muſæi Worm.* Lib. 1. §. 3. cap. 5. [n] *J. Bapt. Helmontii de Lithiaſi* cap. 7. n. 22. 23. [o] *Ibidem.*

ny

ny *Grottos* [p]. He alſo further adds in the ſame diſcourſe, that the *ruſt* which often lyes there over the veins of *Lead-Ore*, ſhoots up *pyramidally* in many places, and is bounded round with ſix angles and ſometimes with five; and that not only the *ruſt*, but the *Lead-Ore* it ſelf, often ſhoots alſo *pyramidally* with rough irregular lines round it, and in ſome places bounded round very regularly with 4 angles, and in other places branched like a *plant* [q]. But I doe not find him or any other *Author*, that it was ever found before in this form, unleſs that which he ſays aſcends in 4. regular angles, be the ſame which ours, the other inferior 4 angles being hid in the rock.

25. After the form'd ſtones of the *Mineral*, I proceed next to thoſe relating to the *vegetable Kingdom*, whereof there are ſome that reſemble intire plants, and ſuch is a *fungites* or *Tuberoides* which I found near *Hedgford* in the forreſt of *Canck*, much ſuch another as that deſcribed & engraven in the *Hiſt.* of *Oxfordſhire* [r], & therefore not repeated here. To which add the *fungi lapidei coralloides* of *Fabius Columma*, which He honeſtly ownes, never to have had their origin, *ex fungorum cadaveribus, ſed propria vegetatione ortum ducere*; that they were never *fungus's* and now petrifyed, but *lapides ſui generis*, that have their growth & form, from another principle of their owne [s]; and this He ſeems to prove, for that they have their *ſtriæ*, in the upper part, and not the lower as the terreſtrial ones have (and therefore perhaps by *Bauhinus* call'd *fungi pileolo inverſo* [t]) the pedicle being ſmooth (ſays He) as *Cluſius* has drawn them [u]. In which particular only, ours differ from His; ours being moſt of them, ſtriated from the lower part of the *pedicle*, to the very *cup*, and ſome of them further adorn'd with tranſverſe protuberant circular edges, as may be ſeen in the *fig.* 3 & 4. which were freely beſtowed on me amongſt many others (wherof ſome are about an inch, others about 3, others 6 inches in compaſs) by the ſame worthy *Gent. Walter Chetwynd* Eſq; who had them from about *Beresford*, and the fields about *Heatley*, and *Bagots Bromley*.

26. Theſe, ſays the ſame *Columna* [w], have their vegetability the ſame way, with the porous *ſpecies* of *Coral*, of *Ferrante Imperato*, which He calls *Madreporæ* [x], whereof too I had an elegant pattern given me by the ingenious *Ch. King* M. A. and *Student* of *Ch. Ch.* Chaplain to Mr. *Chetwynd*, which was found at -------- in this *County*, and the moſt of any *vegetable* reſembles a ſtoole of *reeds* or *ruſhes* cemented together by ſome *lapedeſcent juice*; but that this too

[p] *Philoſoph. Tranſact. Num.* 129. p. 734. [q] *Ibid.* p. 736. [r] *Nat. Hiſt. of Oxfordſh.* chap. 5. §. 132. [s] *Fab. Columnæ diſſertatione de Gloſſopetris.* p. 39. [t] *Joh. Bauhin. in paralipom. in fine Hiſt. admirabilis. fontis Bollenſis.* [u] Lib. 6. *Exot.* [w] *diſſertatione de Gloſſopetris* p. 39. [x] *dell' Hiſt. Naturale di Ferrante Imperato* Lib. 27. Cap. 4.

muſt be a ſtone of its owne kind, is evident from its being ſtriated like the *fungi coralloides* at the top of every cylindrical branch, from a very promanent ſharp *center*, as in *fig.* 5. which the inner parts of *reeds* or *ruſhes*, neither of them are; the former being hollow, all but the joynts; and the latter having a *pith* altogether inform'd. So far are theſe ſtones from being *petrifications*, or ever having borrowed their form from *plants*. As ſome *ſtones*, on the other ſide, as evidently doe: witneſs the *petrify'd moſs* or rather *Equiſetum* menti-on'd before Chap. 2. § 114 of this *book*, and repreſented here *fig.* 6. which is ſo certainly nothing elſe but a petrification of *Equiſetum coralloides foliis manſu arenoſis* (whoſe leaves are always full of ſand and therefore of excellent uſe for ſcouring of *Glaſſes*) that in the boggy ground above mentioned betwixt *Sandon* and *Gayton*, ſome of it may be had half petrify'd, and half remaining ſtill verdant.

27. Amongſt the ſtones that have the ſhape of *whole plants*, we muſt alſo reckon one, found on *Hall's* furlong, at the village of *Stanſop*, in the pariſh of *Alſtonfield*, and kindly ſent me thence by Mr. *Rich. Hall*, to whom I am indebted for many other favours, ſo exactly reſembling the *muſcus pyxidatus*, or Cup-moſs as in *fig.* 7. that poſſibly it may once have been really ſo, as well as the *Equiſetum* in the preceding *paragraph*. But I have another ſent me by Capt. *Jackſon* of the ſame *Village*, a perſon curious in ſuch *natural obſervations*, that though it aſcend from a common root tapering upwards branching it ſelf forth from ſeveral *internodia* as in *fig.* 8. ſo that it may not unfitly be reckon'd amongſt the *flores arboreſcentes internodiis diſtincti*; yet it ſeems not at all probable that it ever was a *plant*, not only for that it would be a difficult task, to find to what *ſpecies* to referr it, but to account alſo for its being thus incloſed in a *ſtone*: much rather therefore ſhould I conclude it, to have been heretofore ſome *petrifying juice*, that following the *hollows* of the *rock*, which caſually were before of this *figure*, might naturally give it ſelf this *forme* in the concretion, juſt as in a *mold*; though we ſee nature without any ſuch help, does performe more excellent pieces of work than this; ſo that I muſt not deny neither but ſhe might doe it, from an internal principle, as well as an external.

28. Hither alſo muſt be referr'd a moſt excellent *Specimen* of *Mineral Corall*, given me by the learned *Walter Chetwynd* Eſq; much like that of Mr. *Beaumont* mention'd and engraven in the *Philoſophical Tranſactions*[y], only the branches are not ruled up as his is; but what is more remarkable, they ſeem all to be joynted, as Mr. *Ray* informs us ſome of it is, as in *fig.* 9. very much reſembling the *Corallium Tubulatum* of *Ferrante Imperato*[z]: which

[y] *Philoſoph. Tranſact. Numb.* 150. [z] *Hiſtoria Naturale di Ferrant. Imperato* Lib. 27. cap. 4.

whether

whether ever made in a *corralline mold* in this inland *County*, or a λιθόφυτον *sui generis*, out of principles of its owne, let the *Reader* determin. Somwhere about *High-Offley*, they have the freſh-water *Adarce* ſuch as that deſcribed and engraven in the *Nat. Hiſtory* of *Oxfordſhire*[a], which was beſtowed upon me by the right Honorable Lady, *Jane* Lady *Gerard* of *Gerards Bromley*, but this being rather an *incruſtation* of an intire plant, or rather a plant *ſheathed* within a *ſtone*, having its form *ab alio*, and not from any *internal principle* of its owne; I paſs it by, as not properly a *rock-plant*, though perhaps not improperly mention'd in this place.

29. Other ſtones there are that only repreſent the *parts* of *plants*, ſuch as the *Stelechites*, that are, or ſhould be, like *trunks* of *Trees*; whereof there lyes one indeed near *Dudley*, betwixt *Merry-hill* and *Clyers-lane* which they call a *Pox-ſtone*, i. e. a ſtone ſcarce viſible by fire; that ſo well reſembles *wood petrifyed*, that I really thought it at firſt ſight the *ſtump* of a *Tree*. But the *Stelechites ſtibii facie* of *Aldrovand*[b], whereof there are many in the rocks at *Beresford*, and *Stanſop*, and the rubble ſtones that lye looſe above ground in the fields, near *Heatley* and *Bagots-Bromley*, ſeem not to deſerve the name half ſo well; they being a ſort of *annular ſtones* regularly joynted, and as regularly ſtriated at top and bottom as in *Tab.* 12. *Fig.* 10. and therefore both as unlike the *trunk* of a *Tree* (though ſome of them are *branched*) or having the *ſtriæ* of *Antimony* (which are commonly irregular) as a thing can well be; nor can they indeed any way reaſonably be compared to the *trunk* or *ſtalk* of any plant whatever. Wherefore the ingenious Mr. *Ray* ha's more rationally thought them, to be the *Spinæ dorſales* or *tail-bones* of *Fiſh* petrify'd[c], they conſiſting for the moſt part of ſeveral *plates* or *pieces* ſticking together like ſo many *Vertebræ* of the back-bone of ſome *Fiſh*; though at the ſame time he moſt ingeniouſly acknowledges, that theſe *pieces* are much ſhorter and thinner than the *Vertebræ* of any *fiſh* he had then obſerved. I am ſure ours are ſo, the thickeſt of them ſcarce exceeding $\frac{1}{8}$ of an Inch, ſome not a $\frac{1}{24}$: though Dr. *Liſter* tells us, he found ſome about *Stock* in *Yorkſhire* full a quarter of an Inch thick[d].

30. Many of theſe being *perforated*, ſome with a *round*, others with *foliated* or *aſterial inlets* of 6 or 7 points, anciently when found ſingle or but double or treble as in *Fig.* 11 they were ſtrung like *beads*, particularly by St. *Cuthbert*, which gave occaſion to their other name of St. *Cuthberts beads*: and becauſe thick ſet with ſmall raies drawn from theſe perforated Centers or *modioli*

[a] *Nat. Hiſt. of Oxfordſhire* Lib. 5. §. 139. Tab. 6. Fig. 10. [b] *Muſæi Metallici* Lib. 1. cap. 9 [c] *Mr. Rays Obſervations Topograph. &c.* p. 116. [d] *Philoſoph. Tranſact.* Numb. 100.

to the rim, like the *ſpokes* of a *wheel*, by *Agricola*[e], and after him by *Geſner*[f], *Boetius*[g], *Kentman*[h], *Wormius*[i], and *Lachmund*[k], aptly enough call'd *Trochitæ*; and if compounded or piled upon one another, as in *Fig.* 12. *Entrochi*, or wheels within wheels; the *rilieve* raies of one *Trochite*, always lying in the *intagli* or furrows between two protuberant raies of the other, as in the *Sutures* of a Skull. As for the *ſpecies* of them we find at the places above mention'd, moſt of thoſe deſcribed and engraven by Dr. *Liſter* and Mr. *Beaumont* in the *Philoſophical Tranſactions*[l]; with all the *varieties* of their length, greatneſs, joynts, cements, bores or piths, lineations, indentures, ſmoothneſs of ſome, ridges, knots, and branches of others; with all the accidental *injuries* that have befallen them: all ſeeming to have been dejected and broken; many of them depreſs't and cruſh't; and ſome of them having their very *Trochit's* diſlocated.

31. I met too with ſome few of them, which had every ſecond, third, or fourth *joynt*, larger than the intermediat ones; and with one of thoſe *tapering* at both *ends*, and ſwelling in the middle like a barrel, marked with but obſcure *raies*, as moſt of the old *Authors* ſay they generally are. But as for the *Summitates* (by *Lachmund* call'd *lapides figura penis abſque præputio*[m],) the *Radixes*, and the ſeveral varieties of pentagonous, and hexagonons *plates*, ſuppoſed to incruſtate them, found at *Braughton*, *Stock*, and *Bugthorp* in *Yorkſhire*, at *Wansford-bridge* in *Northamptonſhire*, and in the *Mendip hills* in *Somerſetſhire*, by Dr. *Liſter* and Mr. *Beaumont*; whereof we have great variety in the *Aſhmolean Muſæum*[n]; I met with none of them here, though poſſibly there may be enough, had I had time to have ſearched narrowly. However I have cauſed neither the *one* or the *other* to be engraven here, that have been done already, by either of the aforeſaid worthy *Authors*, in the forecited places: but ſhall content my ſelf to proceed upon ſuch matters only relating to them, which either they have wholy omitted, or but imperfectly deſcribed.

32. And firſt as to their *texture*, though *Agricola* and the reſt after him, have obſerved that they are made out of *Lamellæ* or little thin Spar-like plates as the *lapis Judaicus*, running 3 different ways, as that ſtone is deſcribed in the Hiſtory of *Oxfordſhire*[o]: yet none of them have taken notice that the *raies* inſcribed on the top of theſe *ſtones*, are made out of the *edges* of one of theſe *courſes* of *La-*

[e] *Geo. Agricolæ de Nat. foſſilium* Lib. 5. [f] *Conr. Geſneri, de figuris Lapidum*, cap. 5. [g] *Boetii de Boot, de lapidibus & gemmis* Lib. 2. cap. 227. [h] *Johan. Kentmanni rerum foſſilium Catalog. tit.* 4. [i] *Muſæi Wormiani* Lib. 1. §. 2. cap. 10. [k] *Fred. a Lachmund.* Ὀρυκτογραφ. §. 3. cap. 16. [l] *Philoſoph. Tranſact. Numb.* 100. 129. 150. [m] *Fred. Lachmundi* Ὀρυκτογραφ. §. 3. cap. 16. [n] *Vid. Scrinium Liſteri in Muſæo Aſhmoleano.* [o] *Nat. Hiſt. of Oxfordſh.* chap. 5. §. 136.

mellæ

mellæ ſet obliquely like a pack of Cards, endways or edgways, according as the *ſtriæ* appear long or ſhort; and that the *raies* of the following *Trochite* are made alſo out of the *edges* of ſuch *Lamellæ* ſet obliquely too, but quite contrary to thoſe of the former *Trochite*, and ſo alternatly; as may be ſeen in the *edges* of each *Trochite*, in the *Entrochus* graven *fig.* 13. though in ſome of them again the *courſes* of the *Lamellæ* ſeem not to be terminated within the *verge* of every *Trochite*, but (which is very ſurpriſeing) though the whole *Entrochus* ſeem without ſide regularly divided into *Trochit's*, and radiated on the *top*; yet the *courſes* of the *plates* paſs ſometimes undivided through ſeveral of them, ſo that they will not break off in the *joynts*, as I have made tryal upon divers; but in deep *indentures* paſſing through two or three *Trochit's*. Nor have they remarked, that upon breaking or ſcraping them, they emit a fetid nauſeous odour, like the *Wolf ſtone* of *Sweden*, which the *Lapis Judaicus* of *Oxfordſhire* or *Paleſtine* will neither of them doe; which is a probable argument that notwithſtanding they appear outwardly to have the ſame texture of parts, yet that they muſt ariſe from far different principles.

33. Alſo in the *radiation* of them I have met with one ſort, given me by the Worſhipfull *Walter Chetwynd* Eſq, that I doe not remember any where noted before, it having a double order of *raies*; the firſt reaching from the *modiolus* or Center (which is in the form of a *cinquefoil*) about half way to the *peripherie*, where they are cut off with a deep *hollow trench*, taking up about half the remaining diſtance to the *rim*, the other moyety being *ſtriated* again as in *fig.* 14. I have another too procured me by the right Worſhipfull the generous, and very obligeing Gent. Sr *Walter Bagot* of *Blithefield* Baronet, that has four very near equidiſtant *raies*, much greater and more prominent than any of the reſt, as in *fig.* 15. And I had another ſent me by Capt. *Jackſon* of *Stanſop*, that has an invecked Line running through the *raies* near the *periphery* of the *Trochite*, as in *fig.* 16. Which are all the differences I have found in the *Entrochi* of *Staffordſhire*, relating to the *raies*, only that ſome of them, have *ridges* within ſide as well as without, with deep furrows between them, that are alſo *ſtriated* from an open *pentagonous bore*, as in *fig.* 17. which too is a ſort of *center* or *pith*, no where mention'd, that I know of by any of the aforeſaid *Authors*.

34. The *Entrochi* of *Staffordſhire*, eſpecially thoſe of *Beresford*, are alſo much larger, longer; and therefore conſequently compounded of more *Trochit's*, than either thoſe of *Yorkſhire* or *Sommerſetſhire*: for I have one by me, given me by the moſt ingenious Mr. *Cotton* 3 inches & ½ about, the center whereof is alſo full ½ an inch

over; and He ſhewed me another in one of the *rocks* near his houſe about the ſame bigneſs, near ½ a foot long; but it was ſo faſt incloſed in the rock, that I could not poſſibly get it out intire: How many *Trochit's* it might be compounded of, I muſt confeſs I did not compute, but I have one by me (the gift of the ſame worthy perſon) which though but 2 inches & ½ long, is made up of no leſs than 35 of them; a number I think exceeding any they mention. And this is all I can find different from what they have obſerved concerning this kind of *Entrochus*; but that in ours, thoſe which have the thickeſt roundeſt *joynts* or *Trochit's*, ſuch as the 11. 12. 13 & 18 of Dr. Liſter; and thoſe whoſe *joynts*, as Mr *Beaumont* ſays, ſhew like a parcell of little *Barrells* piled upon another, have generally, if not always, the ſmalleſt *bores*; and thoſe which the thinneſt *joynts*, the largeſt.

35. But both at *Beresford*, & *Stanſop*; & about *Heatley*, and *Bagots Bromley*, they have another form'd ſtone, that ſeems without-ſide, to be made up of thick *Trochit's* that have no *bore* at all; nor have they any *raies* on the top iſſuing from any ſolid *Center* as in *fig* 18. which I wonder not at, ſince upon breaking and cuting them, I doe not find they are compounded of ſuch *plates* as the others are; nor doe they upon ſcraping or breaking ſend forth an odor: which different properties have induced me to beleive, that theſe may be rather the *Columnettæ* of *Imperato* [p], than *Entrochi* compoſed of *Trochit's*, though like them, they will rather break in the *joynts*, than any where elſe. Another ſort they have too at all the aforeſaid places, that ſeem to be made up of *joynts* as the *Entrochi* are, but neither do the *Trochit's* appear round or ſquare in their utmoſt *rims*, but ſharp like the edg of a *ſcrew* tapering from the place of their *joyning*, whence too they are only *ſtriated* as in *Tab.* 13. *fig.* 1. ſo that the *raies* of one, doe not enter into the *furrows* of the other, neither doe the *Trochit's* or *raies* joyn with the *modiolus* or center (which in theſe is a large *cylinder* of black flint) in right angles, as the former doe.

36. Neither are theſe all of them *cylindrical* as the former, ſome of them *tapering* upwards from a broad *baſis*, the lowermoſt *rings* being the *greateſt*, and ſo gradually in the aſcent decreaſing in magnitude, as in *fig.* 2. And ſo far are they from having ſuffer'd any *accidental injuries* (ſcarce any of them ſeeming to be cruſh't or diſlocated, much leſs broken & imperfect) that they are generally, if not always ſubſtantially terminated at each end, & skreen'd as it were from *harms* by a *cavity* of hard ſtone, in which they are commonly found as in *fig.* 3. ſo that 'tis hard to conceive they were ever otherwiſe, ſince they ſhew not the leaſt ſigne either of

[p] *Hiſtoria Naturale di Ferrante Imperato lib.* 24. *cap.* 22.

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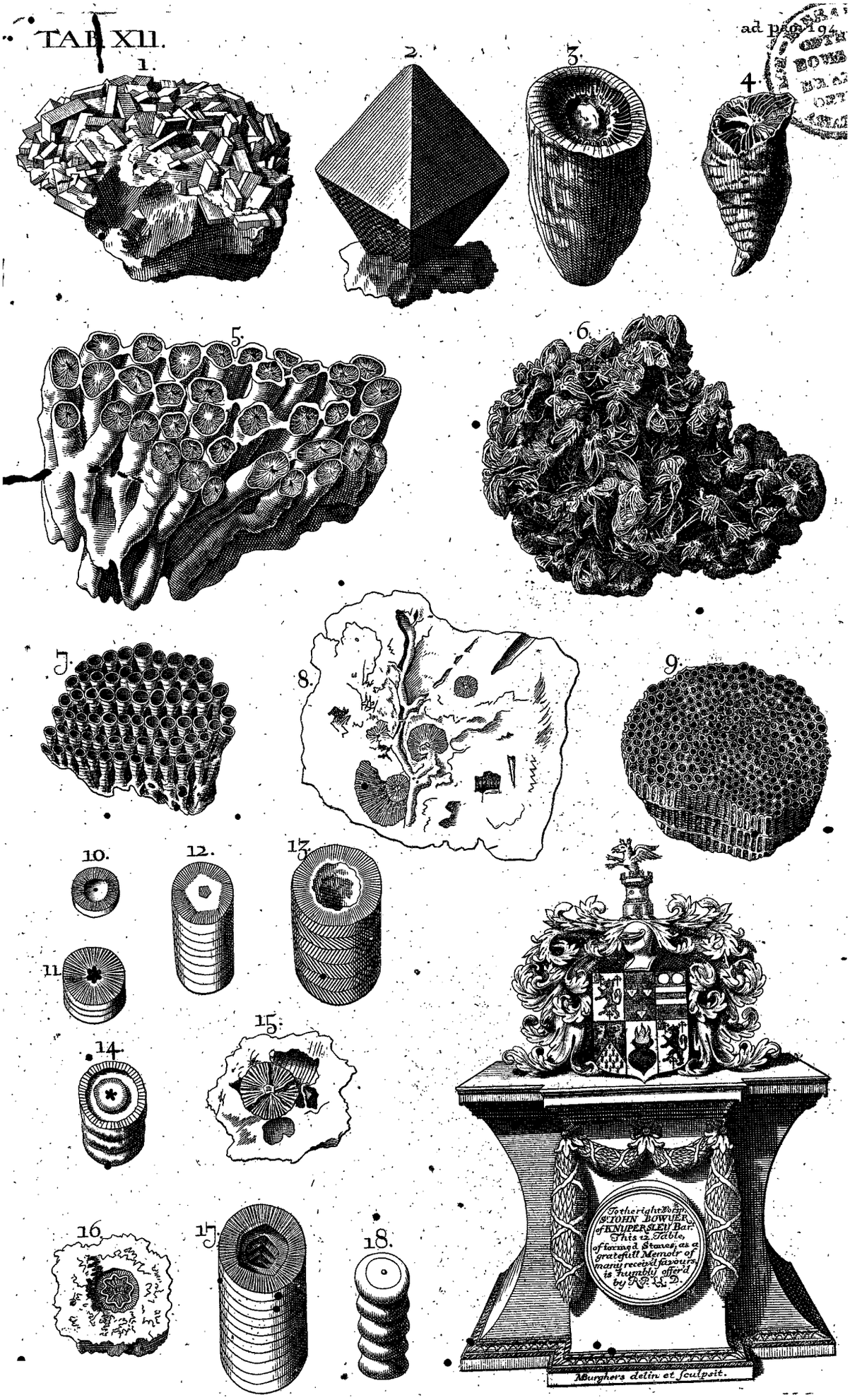
TAB. XII.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To the right Worp.ll S.r JOHN BOWYER of KNIPERSLEY Bar.t This 12. Table, of turned Stones, as a gratefull Memoir of many receivd favours, is humbly offer'd by R. L. D.
Burghers delin et sculpsit.

a *root* or *top*. Nay ſo very different are theſe from the former, that ſome of them have alſo a *thin ſtriated plate* paſſing from the *edg* of each *annulet*, to the ſides of the *Cylindrical concave*, as in *fig.* 4. ſo that there appears a fair *cavity* betwixt each *ring*. And ſome again have *others* included in them as in that repreſented *fig.* 5. incloſed, ſays Dr. *Liſter*, like a pair of *ſcrews*: how His might be I cannot tell, but ours are ſo far from the *nature* of a *ſcrew* (more than in the riſeing of the *edges*, from which reaſon only the *Country* people call them *ſcrew-ſtones*) that they run not *helically*, but ſtand like *annulets* parallel to one another: nor doe the protuberant *edges* of the one, enter into the *furrows* of the other, as the male and female *ſcrews* doe.

37. There are divers others too found in the ſame *places*, and given me by the ſame worthy *Gent.* that ſtand fenced thus in *cavities*, ſome of them in the form of *five columns* barely joyn'd, as in *Tab.* 13. *fig.* 6. others bound together by thin *annulets*, not ſtriated, ſtanding prety thick and equidiſtant, as in *fig.* 7. Some again knit together by the ſame ſort of *rings*, but by *pairs*, ſome diſtance interceding each *pair*, as in *fig.* 8. And others by *four* in like manner, as in *fig.* 9. To theſe add another ſort fenced the ſame way, that are ſome of them *cylindrical*, of equal bigneſs from the bottom to to the top, curiouſly wrought with ſmall *rings*, firſt with *two* at ſome diſtance, then *four* cloſe together, then *two* again, and ſo 2 & 4 alternatly, the whole length of the *ſtone*, as in *fig* 10. and others wrought in the ſame manner, but *bigger* both at *top* & *bottom*, in form of a *pillar* with *pedeſtal* & *capitel* as in *fig.* 11. Laſtly there are ſome very ſmall ones that ſtand in ſuch *cavities*, like ſtraight ſmooth *pillars*, only purled with a row of *knobbs* on each ſide; & others there are that look like ſo many *buttons* piled upon one another: but many of theſe ſeem rather to be decayed great ones than any thing elſe, the *hollows* in which ſome of them ſtand, being as large as the reſt, though the *pillars* very ſmall.

38. Other ſtones there are formed like the *fruits* of *trees*, whereof I had one beſtowed on me by the Worſhipfull *Walter Chetwynd* of *Ingeſtre* Elq; in form and bigneſs, moſt exquiſitly reſembling the *bell* or *King-pear*; in all points the ſame with that deſcribed & engraven in the *Hiſtory* of *Oxfordſhire*[q]; only this is a pebble, and that a black flint; and this but 9 inches about, whereas that was eleven: but not differing at all in form, I have forborne to give any *ſculpture* of it. And I had a ſtone given me, by a poore man of the *Towne*, found on *Whittington* heath, tho not ſo very like the ſtone of an *Almond*, as ſome one would wiſh, it having 4 or 5 ribbs running the length of the ſtone as in *Tab.* 13. *fig.* 12.

[q] *Nat. Hiſt. of Oxfordſhire chap.* 5. §. 134. *Tab.* 6. *fig.* 3.

yet it being very agreeable to the *Amygdaloides* of *Aldrovand*[r], and not eaſily referrable any whither elſe, I have ventur'd (with favour) to give it place here. And I muſt beg the ſame licence for another of this kind, though one of the greateſt curioſities of this nature I ever met with, for notwithſtanding it repreſents in general the true ſhape of the *bicapſular ſeed veſſel* of *Digitalis ferruginea*, or of ſome of the *Verbaſcum's*, as may plainly be ſeen *fig.* 13. having that patilous fiſſure at the top, that the *ſeed-veſſel* of that *plant* naturally ha's when it is ripe: yet in the moſt protuberant part near the bottom, it is perforated with a ſmall hole, round which there are ſeveral *ſtriæ* or lineations bent (not equidiſtant) but according as the form of the ſtone does permit, which indeed are not found in the *ſeed-veſſels* of that *plant*, but in all other matters it truly reſembles them, both in ſhape and magnitude: which being all concerning the *lapides* φυτοειδεῖς, but that this laſt was found at *Bereſford*, and given me by the worthy *Walter Chetwynd* of *Ingeſtre* Eſquire,

39. I proceed next to the ſtones relating to *Animals*, and firſt to thoſe of the *Inſect* kind, whereof I have one ſent me by Capt. *Iackſon* of *Stanſop*, ſo accuratley repreſenting the *combs* of *Bees*, that the *orifices* of each cavity are all *hexangular* as in *fig.* 14. juſt as *hony-combs* are. Others there are that ſeem to have been *Reptiles* petrify'd, of which ſome, found at the ſame place, & beſtowed on me by the ſame worthy Gent. have the true reſemblance of *land ſnailes*; which becauſe already deſcribed and expreſſ't in *Sulpture* in the *Hiſtory* of *Oxfordſhire*[s], are omitted here. And I ſaw part of a ſtone found amongſt others in a *Marle-pit* between *Aqualat* houſe and the *Park*, that prettily repreſented a *Mole* or *Want* both in head and tail, but more eſpecially in the foot, which was ſo very exact, that it was divided into claws, & was like the foot of that *Animal* in all particulars. The learned & ingenious *Edwyn Shrymſher* Eſq; *Proprietor* of the place, told me alſo that there was found in the ſame pit, a ſtone reſembling a *dog* couped about the *reins*, with noſe and eyes ſo very perfect, and the hair ſtanding up, as when that *Animal* is anger'd, yet without leggs; but this I did not ſee, it being ſome way diſpoſed of, before I came thither. The ſame worthy *Gent.* gave me divers other *ſtones* found in the ſame pit; ſome *Umbilical*, having the form of a *Navil*, as in *fig.* 15. others in odd unaccountable ſhapes, yet having enough to ſhew *Nature* was deſigning ſomewhat. All which, in their conſtitutive parts, ſeem to be nothing elſe but a ſort of petrify'd *Marle*, having all of them a ſmall *hole* peirceing them in ſome part or other, whereby I ſuppoſe they re-

[r] *Ulyſs. Aldrovandi Muſæum Metall. Lib.* 4. *cap.* 1. [s] *Nat. Hiſt. of Oxfordſhire chap.* 5. §. 140. *Tab.* 6. *fig.* 11.

ceived

ceived the *Mineral ſteams*, or whatever elſe it is that gives them *form* and *augmentation*, as the ingenious Mr. *Beaumont* obſerves the *rock Plants* doe in *Mendip* hills [t].

40. Amongſt the *ſtones* that any way ſhew the parts of *Animals* (to paſs by the impreſſions of the *Cow* and *Calves* feet, on the great pebble, lying in the middle of the ſtreet at little *On*, with the fable belonging to them) I think we may reckon the *Orchites*, or *Lapides teſticulares*, for I know not what elſe to term them, found near *Rudyerd Hall* at the *Conygrey* there, which are much more proportionable to thoſe parts in *Animals*, than thoſe mention'd in *Oxford-ſhire* [u] but then we find them hear much more extravagant in their *combinations*; for hear you may gather not only the *Diorchis* and *Triorchis*, of *Aldrovand* [w]; but the *Tetrorchis*, *Pentorchis*, *Hexorchis*, and *Heptorchis*, ſuch as deſcribed, *figures* the 16. 17. 18. and 19. The *Monorchis* too (if I may ſo call it, becauſe found together with the reſt) or ſingle round ſtone, is plentifull here, all of them *granulated* as ſhewn in the *figures*, and *lapides ſui generis*, never caſt in any *Animal* mold. To which add a *Thrichites*, ſo calld becauſe compoſed of ſhort *filaments* like the hair of *beaſts*, found in the bottom of the *Marle-pits* in the grounds of my worthy friend Mr. *John Bott* of *Dunſtall* in a place call'd the *Riddings* in *Barton*-liberty, much like that of *Oxford-ſhire* [x], only it is of a whiter colour, and neither channell'd or joynted; however may ſo well be apprehended by that, that there needs no new repreſentation of it.

41. Of *ſtones* that are ſtrictly like the *parts* of *Men*, I have met with only two in this *County*, one found at *Whittington* near *Lichfield*, and given me by Mr *Babbington*, and the other at *Drayton Baſſet*, both ſo well reſembling the *foot* of a *child*, that both may well enough be termed *Andrapodites*, and expreſſed in the ſame *ſculpture*, *fig.* 20. they both ſeem to be of the *pebble* kind of a murrey colour, each between 4 & 5 inches long, but differing ſomewhat in bigneſs, yet ſo exactly of the ſhape of a *childs foot*, that I doubt not they might ſerve well enough for *laſts*, for childrens firſt, and ſecond ſhooes. Nor has *Nature* been content to imitate the *parts* of *Men* in *ſtone*, but to delight Him with the repreſentations of many *Vtenſills* of *Art* relating to Him, ſuch as a *Pipe* for his *Tobacco*, found in the ſame *Marle-pit* near *Aqualat* abovemention'd; which as the worthy Mr. *Skrymſher* ſeriouſly told me, ſo well reſembled that inſtrument both in the *boll* and *heel* (but broken off at about an inch long in the *ſhank*) that it needed nothing of the ſtrength of imagination to help it.

[t] *Philoſoph. Tranſact. Num.* 129. [u] *Nat. Hiſt. of Oxfordſhire chap.* 5. §. 144. *Tab.* 7. *fig.* 5. 6. [w] *Ulyſs. Aldrovandi Muſæum Metall. Lib.* 4. *cap.* 1. [x] *Nat. Hiſt. of Oxfordſh. chap.* 5. §. 145. *Tab.* 6. *fig.* 7.

42. In the ſame Pit, was found another ſtone of a greeniſh-blew colour, with a *bore* through the middle, and *furrowed* from each orifice round the ſides, like a *Cloak button*, as in *fig.* 21. which moſt certainly would really ſerve for a *button mold* of that form. Nor has *Nature* only provided *Man* with *buttons* to his *cloathes*, but with a *barrell* too, for his *drink*, as appears from a *ſtone* (were it hollow) found at *Alrewas*, and ſent me by the worſhipfull *John Turton* Eſq; ſwelling in the middle and tapering at both ends, divided with ſuch equidiſtant lineations the whole length of the ſtone, as are uſually made by the *ſtaves* of a *barrell*, as in *fig.* 22. but having no *hoops*: however perhaps it may well enough deſerve the name of a *Cadites*. She ſeems alſo to have furniſh't Him with a *Saddle* for his Horſe, if the *Ephippites* of *Aldrovand*, ſuch as are frequently found in the Mountains near *Bononia*[y], will ſerve his turn; ours, found about *Walſtanton* of a flinty ſubſtance, being exactly like his, only it has not the liſts round it, which contribute little to the name: however it being ſomewhat different, and but rarely met with it, I have cauſed it to be engraven *fig.* 23.

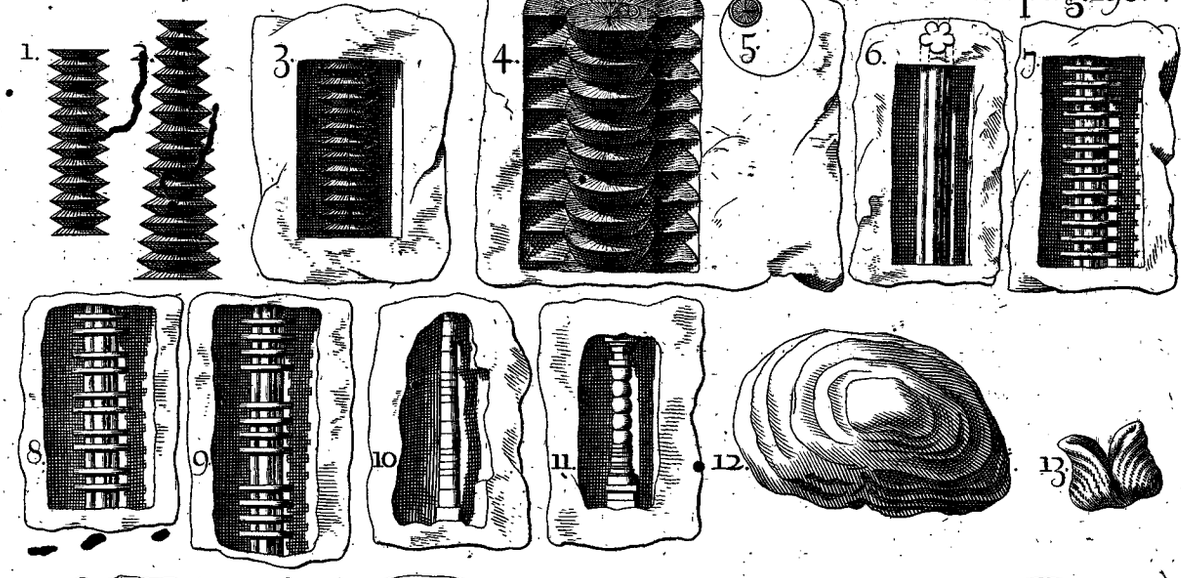
43. But amongſt all the things of *Art* imitated by *Nature*, there ſeem none to be ſo ſurprizing, as the *rings* of *ſtone*, *Iron*, and *Copper*, found about the *ſtalks* of *Gorſe*, in the lands of the right Honorable *Iane* Lady *Gerard* of *Gerards Bromley*; which I doubted not at all, when She gave me the firſt relation of it, were ſo ſhewen to her *Ladyſhip*, but always feared an *impoſition* by ſome waggiſh hand: till I met with parallel Hiſtories from other *Countries*, of what had been found of the like nature both in *ſtones* and *Metalls*. The former whereof is amply confirm'd from *Iamaica* by the ingenious Mr. *Stubbs*, where He ſays they find plants with ſtony *accretions* about their *boughs*, which are often looſe and moveable, as *beads* upon a ſtring[z]. And *Bohuſlaus Balbinus* in his Hiſtory of *Bohemia*, tells us that 'tis ſo frequent in that *Country* for the *perfect Metalls* to conform themſelves to the nature of the things among which they grow, that *Gold* and *Silver* is found in *ſtalks* amongſt *Corn*, in *threads* about *Vines*, and ſometimes growing in the inſides of *Trees* about their *pith* *. Now if ſo, why may not theſe *imperfect Metalls* (in a *Country* fruitfull of them) grow in rings without ſide the *ſtalks* of *Gorſe*, as well as the *perfect* both without and within ſide other *plants*, in other *Countries*. However, theſe *Examples* of natural *rings* growing about *Shrubs*, *Trees* &c. afford me a fair introduction to the next *Chapter* of *Plants*.

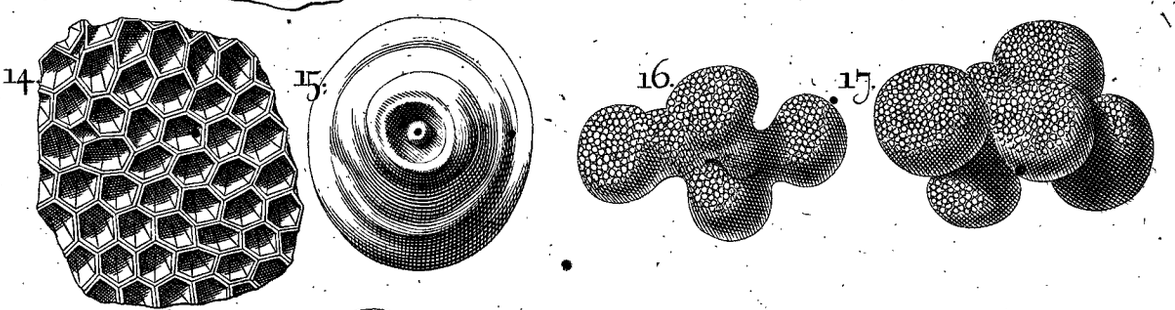
[y] *Ulyſs Aldrovandi Muſæum Metall. Lib.* 4. *cap.* 1. [z] *Philoſoph. Tranſact. Numb.* 36. *p.* 701.
* *Mr. Beaumont's Weekly Mem. Numb.* 4. *p.* 29.

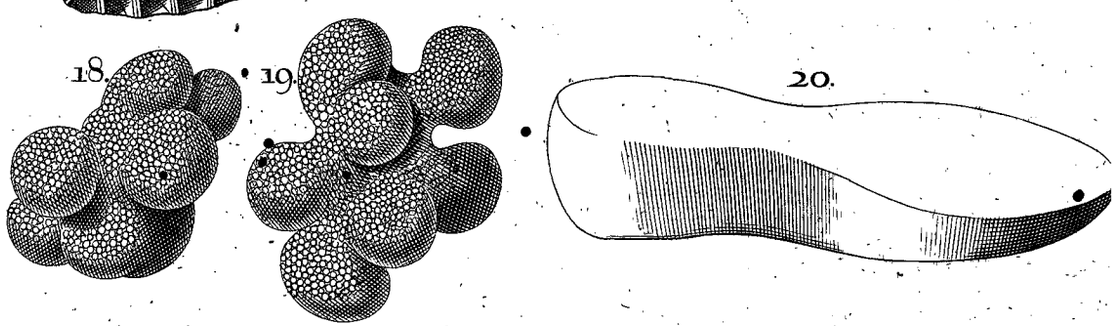
CHAP. VI.

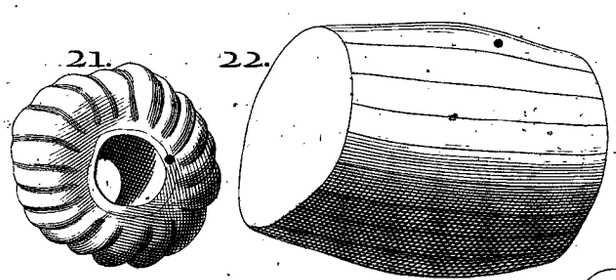
TAB. XIII.

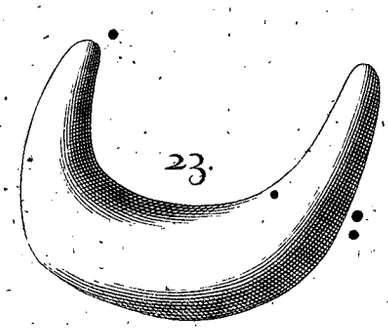
ad pag. 198.











Mynghers delin. et sculp.

CHAP. VI.

Of Plants.

1. HAving done with the *Mineral*, the order of *Nature* directs me next to consider the *Vegetable Kingdome*, the *Plants* of this *County*, whether Herbs, Shrubbs, or Trees; amongst which (as in *Oxfordshire*) I shall only treat of such as are

Either
1. wholy undescribed by any *Author* we yet know of, or described but imprefectly.
2. that have not been found by the learned Mr. *Ray* to be *Indigenæ* of *England*.
3. that have never till now been found to be *Mediterranean* plants.
4. that have any unusuall *accidents* attending them.
5. that are not commonly cultivated in the fields, where by the way, some of the *Agriculture* of the *Country*.

in which order, I shall consider all the aforesaid three *Species* of *Plants*, as far as each of them will bear it, and then proceed to the *Animal Kingdom*. And first of the *Herbs*; such as have a *carnous* substance, and will never become *lignous*; of which those that are *indigenous*, & wholy undescribed, or described but imperfectly, are these that follow.

2. *Muscus multiformiter pyxidatus, capitibus sive apicibus coccineis.* Which beautifull Scarlet-headed *Cup* or *Chalice-Moss*, in its flourishing condition, is of an ash-colour, sometimes darker according to the season of the year, and grows thick upon mole hills in in *Cank-wood*, about *Wildmoore Hollies*, *Fair Oak*, and *Wolsely-park*, of the size, and sometimes of the figure of a *Clove*; the *Calix* now and then being square at the top, and sometimes round, and oval; never very deep but always set round or purled with *scarlet eminencies* about the bigness of small pins heads as in *Tab.* 14. *fig.* 1. which was first discover'd to me by the learned and judicious *Edward Brych* of *Leacroft* Esq; and is so certainly an undescribed plant that I find nothing like it in any of the books: yet I cannot number this, nor any other *Cup-moss* amongst the *plants* properly so call'd as other *Authors* doe, neither of them produceing either *flowers* or *seeds*, that have been yet discover'd; wherefore I rather chuse

to

to reckon it among the *fungus's*, which uſhers in another undeſcribed *fungus*, that perhaps may not unfitly be ſtiled,

3. *Fungus ramoſus candidiſsimus ceranoides, ſive digitatus minimus, nonnunquam corniculatus.* This white branched finger formed *Muſhrom*, whereof ſome of the blades are curled round divided and jagged like the Spellers of a *Bucks-head*, as in *Tab.* 14. *fig.* 2. found plentifully both in *Chartley* and *Ingeſtre* Parks, aſcends from a conjunction of many ſmall branches at the bottom, about 3 or 4 inches high, commonly ſtraight and ſomwhat flat, each blade (eſpecially the greateſt) channell'd near the top. The moſt like of any plant yet deſcribed to the *Digitatus* of *Parkinſon*[a], only none of the blades of his are divided or horned, which perhaps may be accidental; yet it cannot be either his *major*, or *minor*, or the *Digitelli* of the *Italians*: which though a diminutive terme, are ſo large notwithſtanding, that one of the white fingers (ſays he) will ſuffice a man for a meal. It remains therefore, that it muſt be an undeſcribed *Fungus*; and ſo muſt the

4. *Fungus pulverulentus, cute membranaceâ, ſubſtantia intus ſpongioſa, pediculo brevi craſsiori, in oras fere ducto.* Which ſort of *fungus* found near *Packington*, and firſt obſerved by Mr. *Walter Aſhmore* of *Tamworth*, and after on *Alrewas-hays* near the deep ſpring mention'd *Chap.* 2. § 51. by *Francis Wolferſtan* Eſq; is very large, ſomtimes 4 or 5 inches *diameter*, and near two inches thick, and riſes from a ſhort thick pedicle, narrow at bottom, and extending it ſelf broader almoſt to the brims of the *fungus*, like an inverted *Cone* as in *Fig.* 3. ſomewhat like the *fungus tuberoſus eſculentus albus, fuſco permixtus of J. Bauhin*[b]: and the *fungus durus Arborum ſive igniarius* of *Parkinſon*[c]. But can be nether of them, this being ſoft, and cover'd with a tough membranaceous skin, and the ſubſtance within much reſembling a *Spunge* both in texture and colour; the *Cavities* whereof when it is ripe, are fill'd with juſt the ſame duſt or fine powder, which flyes from the *Lupi crepitus* or *Fuſs-ball* upon which account I chuſe to referr it to that kind of *fungus*, though it differ much from any yet deſcribed in the *pedicle*, and carnous ſubſtance; which as Mr. *Aſhmore* orders ſome of it, is much like *Spunk*, or the downy part of *Artimeſia Ægyptiaca*, and I beleive if boiled in *Niter*, like the *fungus igniarius*, might be render'd as uſefull *ad ellychnia*, as any *fungus* whatever.

5. At *Bentley* in the *park* and *lanes* there about, at *Oldfallings*, & almoſt any where within 3 or 4 miles of *Wolverhampton*, the *Fungus phalloides*, or *phallus Holandicus* of *Hadr. Iunius*, is frequently found in old dry ditch banks (about the middle of *Iuly* and ſome-

[a] *Parkinſon's Theatrum Botanicum. Tribe* 14. *chap.* 63. [b] *I Bauhini Hiſt. Plantarum Lib.* 40. *cap.* 16. [c] *Parkinſon's Theatrum Botanicum Tribe* 14. *chap.* 94.

times

times if a warm *Autumn*, as late as *Michaelmaſs*. They are ordinarily betwixt 8 or 9 Inches long, and ſeem to be made up of 3 diſtinct parts: the *Volva* or round bagg at the bottom repreſenting the *Scrotum*; the *Coles* or body; and the *Capitulum Glandiforme*, or nut of the yard; of which in their order. The *Volva* which is ſometimes bigger than a Tennis-Ball (and ſeems to draw its nouriſhment by one or two ſmall *fibres*, which are ſo tough that a man muſt pluck pretty hard to break them) is cover'd with a whitiſh tough *membrane*, which contains a thin *pellucid gelley* of an amber colour; under which there is another very white *tunicle*, that includes a dirty green *farinaceous matter*, which *Bauhinus* compares to the *tunica elytroeides* of the teſticles;[d] and then a third, ſmooth on the inſide next the *cavity* in the center of the *Volva*, and faviginous like a *hony-comb* or *tripe*, without; out of which laſt *membrane* both the *body* and *nut* of the yard, ſeem to grow; the whole length of the *ſcapus* or *coles* being *faviginous* without, and *hollow* within (the *Cavity* tapering at both ends, and growing wider in the middle in proportion as the *ſcapus* does) and the *capitulum glandiforme* alſo *ſmooth* underneath and *faviginous* without, the *Cavities* whereof are fill'd with that *dirty green* ſubſtance, that lay next it in the *Volva*; which corrupting becomes liquid, and ſends forth that filthy ſtink, by the help whereof they are commonly found; though often too paſs't by, upon that very account, many thinking it to be *Carrion*, lying hid ſomewhere near, and ſo heeding it no further.

6 All which may be clearly and fully underſtood by the exemplification of it *Tab.* 14 *fig.* 4, which I have cauſed to be engraven, becauſe none of the *Cuts* either in *Bauhinus* or elſewhere, ſeem agreeable to ours: wherein

a. Shews the exterior *membrane* of the *Volva*.
b. The *pellucid gelley* within it.
c. The ſecond *tunicle*, including the farinaceous matter.
d. The third *membrane*, faviginous without, and ſmooth within.
e. The *hollow* under it.
f. The *Veretrum*, faviginous without.
g. The *hollow* within, tapering at both ends.
h. The *capitulum glandiforme*, ſmooth underneath.
i. Faviginous without,

in the *Cavities* wherof lyes the *ſtinking gelley*, which is of the conſiſtence of *Tarr*, firſt of a dark greeniſh colour, growing ſadder by degrees as the *plant* decays, till it approaches a black. Standing in the *Sun* or *rain* it ſeems to admit of no *alteration* from either; all it has, proceeding from its ſelf, which is very *quick*, its

[d] *J. Bauhini Hiſt. Plantarum Lib.* 40. *cap.* 60. 61.

whole *duration* (after they begin to ſtink, till which time they are ſeldom found) ſeeming not to be above 3 or 4 days. Near the *phallus* here deſcribed, were found two other *baggs*, full of the ſame ſort of matter as the *Volva*, joyned together with a tough *fibre*, having other *roots* or *fibres* iſſuing from it, as in *fig.* 5. which I take to be two diſtinct *Volvæ*, that had not yet ſent forth their *phalli*, and not at all belonging to the intire *phallus*, but upon what account thus knit together, I muſt freely confeſs I doe not underſtand.

7. Which are all the *indigenous plants* either wholy undeſcribed, or deſcribed but imperfectly, that I met with in this *County*; and theſe too, only *fungus's*, plants improperly ſo call'd, having neither *flowers* or *ſeeds*, that we yet know of. Nor doe I much wonder at it; the moſt ingenious & moſt induſtrious Mr *John Ray* having lived ſo many years in the confines of this *County*, and no doubt ſearched it diligently. However I heard of one growing on the paper-Mill dam poole in *Heywood* park, though deſcribed by other *Authors*, yet not noted by that worthy perſon to be of *Engliſh* growth, viz. *Tithymalus Characias Monſpelienſis*, or ſweet wood-*Spurge*, the Eighth of *Gerard*[e]; or great French wood-Spurge, the Second of *Parkinſon*[f], which ſeem by the *Cuts* to be much the ſame, and are ſo well deſcribed by both thoſe *Authors*, that I ſhall ſuperſede any here.

8. And as for ſuch as were never found till now to be *Mediterranean plants*, my worthy friend Mr. *Charles King*, *Student* of *Ch. Ch. Oxon*: and *Chaplin* to Mr. *Chetwynd*, ſhewed me the *Turbith* of *Serapio*, the *Tripolium vulgare minus*, or at leaſt the *Tripolium minus Germanicum*, the *Sea Starr-wort* of *Germany*, well deſcribed, and whereof there ſeems to be a good Cut in *Johnſons* enlargement of *Gerards* Hiſtory of Plants. Which though generally ſaid to grow upon the *Sea-coaſts*, eſpecially in *Salt marſhes* where the *tide* ebbeth and floweth, as *Lobel* ſaith the *Tripolium vulgare minus* doth at the mouth of the River *Po*[g], and *Johnſon* at the foot of the fort at *Graveſend*, in the *Iſle* of *Sheppey*, and near *Sandwich* in *Kent*, all near to *Salt marſhes*[h]; yet here it is found in an inland *Country*, at leaſt 50 miles from the *Sea*, in the grounds of the worthy Mr. *Chetwynd* of *Ingeſtre*, within two miles of *Stafford*; and yet not much to be wonder'd at neither: for though found thus in a *Mediterranean Country*, ſo far from the *Sea*, it ſeems not at all to have been out of its natural abode: for it grows here in a ground call'd the *Marſh*, mentiond before in this *Hiſt. Chap.* 2. §. 112. near the

[e] *Gerard's Hiſt. of Plants enlarged by Johnſon Lib.* 2. *chap* 139. [f] *Parkinſon's Theatrum Botanicum Trib.* 2. *chap.* 16. [g] *Matthiæ de Lobel Plantarum & Stirpium Hiſt. pag.* 158. [h] *Johnſon upon Gerard Lib.* 2. *chap.* 93.

place

place where the *brine* of it ſelf breaks out above ground, frets away the graſs, and makes a plaſh of *Salt-water*. Juſt as *Cordus* ſaith the *Tripolium minus Germanicum*, or *Anthyllis*, groweth in the *Salt Marſhes*, that are nigh unto a *Lake* of *brackiſh water*, near *Staffurt* in *Germany*, which in all probability too is an inland *Towne* [i]; as if this plant were confin'd to grow in places of the like ſituation and name, though in *inland Countries*, and far remote from the places of its uſual growth.

9. As for extraordinary *Accidents*, that have happen'd amongſt the *indigenous herbaceous plants* I have met with but few; and thoſe I ſuppoſe ariſing cheifly, either from the *ſoile*; or from the *ſeaſon* wherein the *ſeed* of them was ſowne; or from ſome other *external accidents*. From the firſt whereof, it moſt certainly comes to paſs, that *plants* ſometimes produce *flowers* of different *colours* from what they uſually doe; as I have reaſon to ſuſpect a *Digitalis* or *Fox-glove* that I found by the way ſide near *Norton* in the *Moors* might poſſibly doe, from the *poverty* of the *Soile* there about, which ordinarily produces a *preternatural whiteneſs*, as was fully ſhewn in the *Nat. Hiſt.* of *Oxfordſhire* [k]. Or elſe that the *ſeed* of this *plant* by ſome caſualty or other, was not committed to the *Earth* in *due time*, which experience ha's taught us will make the ſame alteration in the *colour* of *flowers* as was found by that moſt skillfull *Botaniſt* Mr. *Jacob Bobart* of *Oxford*, who ſeriouſly told me He once ſowed *ſtock-Gillo-flower* ſeeds in the *Spring* which produced *red* flowers, and others again three months after, out of the ſame paper of ſeeds, which brought all *white* ones: ſo very nicely doth the *colour* of *flowers* depend, upon the agreeableneſs of the *ſeaſon*, as well as *ſoile*.

10. Nay ſo very unaccountable are the *colours* of the *flowers* of *plants*, that as the ſame *worthy perſon* told me more than once, from the *ſeeds* of the ſame *Anemone*, which was all of the *ſame colour*, and ſowne in the *ſame place*, were produced *Anemone's* of as great variety of *colours*, as if He had ſown a *mixt ſeed* from divers: to which I can further add, that *flowers* of two different colours ſhall ſometimes grow upon the ſame *ſtalk*, which may well be preſumed to come from the ſame *individual ſeed*; as I was ſhewn it by an excellent *Floriſt* at *Beſcot* in this *County* in the *Caryophyllus hortenſis*, where there grew a *red one* and a *white*, on the ſame *ſtalk*: which whether to be attributed to the *ſeed*, or *ſoil*, ſeems to be an inſuperable difficulty. Much more certain is it, that the *thickneſs* of the *huſks* of the *Corn* of this *County*, which is another *accident*, proceeds ſolely from the *ſoile* it being held here for a

[i] *Val. Cordi Variar. Obſervat. Sylvâ p.* 222. [k] *Nat. Hiſt. of Oxfordſh. Chap.* 6. §. §. 17, 18, 19, 20. *and* 38.

certain *Rule*, that the colder any *Country* is, the thicker will the *huſk* of any ſort of *grain* be; as if *Nature* deſigned to fence it againſt the *ſeverity* of the *Clime*.

11. And theſe are all the *accidents* relating to *Herbaceous Plants*, I met with in this *Country*; except we may reckon untimely flowring, and bearing of fruit, for one; ſuch as happened in the garden of one Mr. *Jobber* of *Acton-Truſſell*, who had once *Strawberrys* freſh and fragrant three days before *Chriſtmaſs*: the ſame I once ſaw in *Merton College* garden in the Univerſity of *Oxford*. The reaſon whereof becauſe not ſo commonly known, has the rather induced me to mention it here, and to let the *Reader* know that this may come to paſs no leſs then two ways. 1. By *Nipping* the *Budds* before they come to *Flower*, and ſo putting them ſo far back, that they cannot recover this *injury* ſo as to produce their *Fruit* before the ſeaſon above mentioned. Or elſe 2. By *Tranſplantation*, which is much the better and ſurer way, if one deſigne to have *Fruits* out of ſeaſon (for the *Budds* nip't, ſometimes will never make a ſecond attempt,) thus *Strawberrys* tranſplanted before they *Flower*, and tranſplanted again in *Autumn*, if the Winter prove mild and temperate (which is abſolutely neceſſary in both caſes,) they may and doe perhaps, more frequently then noted, produce their *Fruit* about that time of year.

12. Of unuſual *Herbaceous Plants* now cultivated in the fields, the *Vicia Sylveſtris, ſive Cracca*, the wild *Vetch*, here call'd *Targraſs* has been obſerved in ſome parts to doe ſo well in *Meddows*, that it advances all ſtarven weak Cattle above any thing yet known. And the *Piſum album majus* or garden-*Rouncival* has been ſown in the common fields in the Pariſh of *Millwich*, which notwithſtanding their great length, were found to run upon the ground without inconvenience, and to kern well. This as I was informed was firſt attempted by *Matthew Philips* of *Coton* in that Pariſh, with ſuch ſucceſs, that at firſt he ſold theſe *Peas* for ten Shillings the Buſhell in many other places in the *Vicinage*, to ſuch Neighbours as were ſatisfyed with the advantage of his good husbandry.

13. At Mr. *Traffords* of *Swythamley* in the moſt Northerly *Moorelands*, I was firſt told (but found them almoſt every where elſe,) of a ſort of *red-Oate* ſowne thereabout, which upon examination I found indeed quite different from any ſort of *Oate* any where cultivated in the *South* of *England*, the grain being redder, larger, and fuller of Flower, and requiring a ſtronger Soile then other *Oats* doe, of which they make their beſt *oaten* bread in that *Country*. And at *Burton* upon *Trent* I was ſhewed by one Mr.

Tomlinſon

Tomlinſon the *Avena nuda* or naked Oat, ſown there by Him that very year, which grows in all points like other *Oates*, ſaving that they are much ſmaller, without husk, and are indeed perfect *gritts* naturally, requiring no Mill to make them into *Oatemeal*, as all other *Oates* doe.

14. To which I may add *Zeopyrum*, *Tritico-ſpeltum*, or *Hordeum nudum*, naked barley, which I found ſown at *Broctton* and *Ellarton grange*, where they otherwiſe call it *Bare-barley*, I ſuppoſe becauſe without *husk*; and *Wheat-barley*, becauſe though its *Eare* be ſhaped like *barley*, its *grain* is like *Wheat*, without any husk. For which very reaſon the *Latins* have termed it *Tritico-ſpeltum*, it having the ſtalk, joynts, and bearded Eare of the true *Zea* or *Spelt* of *Lugdunenſis*[l], though the Corn be like Wheat, and not husked, as all *Spelt* is. At *Rowley* in the Pariſh of *Hamſtall-Ridware* where it is alſo ſown, they call it *French-barley*, becauſe ſo like that which we buy in the *ſhops* under that name. In ſhort it is a plant between *wheat* and *barley*, in goodneſs as well as form; it giving a flower, as worſe then *wheat*, ſo better then *barley*; and is therefore ſown that it may be uſed inſtead of *wheat* (for bread,) in a ſcarcity, and by the poorer ſort at any time. It runs to *malt* as well as other *barley*, and makes a good ſort of drink: but the great advantage lyes in the *increaſe*, it producing ſometimes in an agreeable ſoile near twenty fold.

15. Yet a more improper ſort of *wheat* then that above mention'd, is ſown in the barren hungry lands of this *County*, viz. *Ocymum Gereale ſive Tragopyrum*, commonly call'd *Buck-wheat*, not that it has any likeneſs either in the herbage or grain to any ſort of *wheat*, but I ſuppoſe becauſe the Seed of it ſerveth among the meaner ſort for the ſame uſe, for making of bread. It is ſown either alone, or mixt with other corn, as I ſaw it mixt with *barley* on *Heyley-Caſtle* hill, and ſo it is made into bread and eaten; which though leſs nouriſhing then *Wheat*, *Rye*, or *barley*, yet more then *Millet*, or *Panick*; and that nouriſhment good: for the Country People of divers places in *Germany* and *Italy* feed only upon this, and yet are ſtrong and fit for the hardeſt labour. It digeſts eaſily and fattens quickly, eſpecially *Cattle* and *Poultry*, which if not ſpeedily kill'd after they are thus fatted, 'tis ſaid, will dye of themſelves, ſuffocated with their own fat.

16. *Triticum multiplex* or double-eard *wheat*, deſcribed in *Oxfordſhire*[m], has been alſo ſown at *Rowley Regis* in this *County* by *Hen. Warrant* tenant to Mr. *Amphlet* of *N. Clent*. And

[l] *Gul. Rovilii Lugdunenſ. Hiſt. Plantarum Lib.* 4. *cap.* 4. [m] *Nat. Hiſt. of Oxfordſh. Chap.* 6. §. 27.

in *Worceſterſhire* and the S. W. parts of this *County*, *Triticum Polonicum, ſive Triticum ſpica albicante aliqualiter ariſtata, glumis foleaceis ſive folliculis avenaceis, granis rufeſcentibus*, has been ſometimes ſown: and I was told by one at *Hilderſtone* An. 1681. That he intended to ſow it there the year following. This ſort of *wheat* generally received by the name of *Poland*, is preſumed originally to have come from thence; which riſing from a fibrous root, grows 4 or 5 foot high more or leſs according to the quality of the land, with a larger ſtalk, and leaves, then other *wheats* uſually have; bearing at the top a long Eare, with long ſpreading foleaceous husks, each about an Inch long; amongſt which about the bottom grows the *grain*, which is longer and thicker then any other *wheat*; and is ordinarily ſome of it found to divide its *Ear* into ſmaller ones toward the lower part, ſomewhat like *Triticum multiplex*. Which being no where deſcribed that I yet know of, I have here cauſed to be graven *Tab.* 14. *Fig.* 6. And ſhould have been numbred amongſt the *undeſcribed plants* in the beginning of this *Chapter*, but that it is no native of *England*, and only cultivated here.

17. After the *herbaceous plants* I ſhould have proceeded next to the undeſcribed *Shrubbs*, had I met with any in the *County*, but having failed therein, I immediatly apply my ſelf, to thoſe not noted by Mr. *Ray*, to be of *Engliſh* growth: whereof I met only the *Sambucus fructu albo*, growing plentifully in the hedges near the Village of *Combridg*, which differs not at all from the common Elder, in the growth, pith, ſcent, leaves, or flowers; only in the colour of the fruit and rind; which laſt in this, is alſo ſomewhat whiter. This ſays *Parkinſon*, was firſt found by *Tragus*, in the Woods of *Germany*, not ſo much as imagining it grew any where in *England*: but I hear it grows alſo ſomewhere near *Maidſtone* in *Kent*, as well as here at *Combridg*. The *accidents* attending *ſhrubbs*, alſo are not many, nor very conſiderable ones neither. At the Honorable *Harry Grays* of *Enfield* Eſq; there grows a *Woodbine* in the garden 6 or 7 foot high, having ſeveral ſubſtantial branches, altogether independent of any ſupport. And at *Millwich* at the South end of the *Vicaridg* houſe, grows an *Ivy Buſh* which aſcending to the top of the roof and twiſting it ſelf about a wooden pinnacle there, and having no higher ſupport, after ſpreads into branches like an *Oak* or *Elm*, and carrys a fine round top ſtanding of its ſelf like the *Ciſſos* of *Pliny*[n]: which I could not but note as extraordinary in theſe two plants, they uſually elſwhere requiring dependance.

[n] *C. Plinii 2di. Nat. Hiſt. Lib. 16. cap. 34.*

18 Much

18. Much more remarkable is it that happen'd to a *Vine* in the garden at *Aqualat*, which formerly bore a *red Muſcadel*, now a very pleaſant ſweet *white Grape*. That *flowers* will change their colour from red to white upon the *penury* of the *Soil*, has been fully ſhewn in *this*; and the *Hiſtory* of *Oxford-ſhire* °: but that *fruits* ſhould alſo doe it, is new to us; and yet that this muſt be the reaſon ſeems to be more then probable, becauſe this very *Soile* that has ſo changed the colour of the *Grapes*, has changed *flowers* too; both whereof have been noted by the prudent and carefull obſerver *Edwyn Skrymſher* Eſq; the Proprietor of the place, who could not well be deceived, having frequently eaten *Grapes* from it of both colours, and the *Vine* ſtanding by it ſelf, free from all others.

19. Thus having diſpatch't both *herbs* and *Shrubbs*, I come at length to the *Trees*; amongſt which ſome will needs have St. *Bertram's* Aſh, that growes over a *ſpring* which bears the name of the ſame *Saint*, in the Pariſh of *Ilam*, to be of a different undeſcribed *ſpecies* from all others; and indeed it has a narrower ſharper leaf, then ever I ſaw any: but whether this may not be aſcribed to the *age* and *decay* of the tree, I much ſuſpect. However it be, 'tis certain the common people ſuperſtitiouſly beleive, that tis very dangerous to break a bough from it; ſo great a care has St. *Bertram* of his *Aſh* to this very day. And yet they have not ſo much as a *Legend* amongſt them, either of this *Saints* miracles, or what he was; onely that he was *Founder* of their *Church*, where they ſhew you his *Monument*; of which I ſhall endeavour ſome account in the *Chapter* of *Antiquities*.

20. Much rather ſhould I think the *yellow Yew* near *Smethwick* Hall to be an *undeſcribed Tree*, which has ſome branches with all the leaves of a bright *yellow* colour: this I thought at firſt might proceed from ſome *diſeaſe*, or that thoſe branches might have been wounded; but upon examination I found them all ſound: Nay ſo far was this part of the tree from weakneſs, that it had *berrys* on it, when the *green* part had none; and yet it differing from other *Yew-trees* only in colour, and not in any of the *Eſſentials*; I can neither afford to pronounce it a diſtinct *ſpecies*, nor allow it for an *undeſcribed plant*; the difference ſeeming but *accidental*, though perhaps hard enough to be accounted for.

21. As I ſuppoſe the *ſpots* may be upon the *leaves* of a *birch* in the Copice South of *Ranton Abbey*, which in the ſpring time are as red and ſhining as if *freſh blood* had fallen on them; upon which account it is reaſonably enough call'd the *bloody Birch*: in

° *Vid. Supra* §. 9. *of this Chap. and Nat. Hiſt. of Oxfordſh. Chap.* 6. §. 38. *Chap.* 7. §§. 13. 14. 15.

Auguſt

Auguſt indeed when I was there, the *ſpots* were of a ſomewhat darker hue; and the tree ſtanding under an *Oak*, I ſuſpected they might be cauſed from the dropping thence: but the *haſells*, and other underwood ſtanding cloſe by it, having no ſuch matter on them; unleſs there be ſome ſecret quality betwixt an *Oak* and a *birch* that produces this dye, I cannot conceive how it ſhould come to paſs. However this is certain, that here is no ſufficient ground to multiply the *ſpecies*.

22. No more then there is for a ſort of *thorn* that grows in a hedgrow *Weſterly* from *Whichnor* Chappel twixt that and the *Park*, which produces leaves in the *Spring* ſome years, of a brisk *yellow* or *ſtraw* colour, which ſeemed to me, the leaves being leſs then of other thorns, and recovering their greeneſs (as was confeſt,) by St. *James-tide*, rather to be the effects of a *diſeaſe*; or the frequent cutting it for *preſents*, then any thing elſe. Nor can I multiply the *ſpecies* for the ſake of a *Black-Cherry*, growing in the Court before the houſe of the Honorable *Harry Gray* of *Enfield* Eſq; of ſo peculiar a vinous taſt, that there are no others like them any where in the *County*; nor will they if tranſplanted to a competent diſtance, preſerve the ſame goodneſs: which argues they have this quality from the *agreeableneſs* of the *Soil*, as the *Kentiſh* Cherrys have, which tranſplanted from that part of the *Country* which is eminent for them, all degenerate more or leſs according to the qualitie of the *Soil*.

23. As for *trees* not noted to be of *Engliſh* growth by the learned Mr. *Ray*, the *Sorbus pyriformis* is not the only one I met with here, which grows wild in the *Moorelands* at many places, and is ſometimes tranſplanted into their gardens: it is deſcribed by *L'Obelius*, *Mathiolus* and *Bauhin*, who unanimouſly place it in *France*, *Italy* and *Germany*: but the firſt that ever found (at leaſt noted,) it to be a *Native* of *England* that ever I heard of, was the skillfull *Botaniſt* Mr. *Edmund Pitt* Alderman of *Worceſter*, who met with it in a *Forreſt* of that *County* and ſent this deſcription of it to the *Royal Society*. It *reſembles* (ſays he,) *the* Ornus *or* Quicken-tree, *only the* Ornus *bears the* flowers *and* fruit *at the end, this on the ſides of the branch*: *next the* Sun *the fruit hath a dark red bluſh, and is about the bigneſs of a ſmall* Jeneting pear; *in* September *of ſo harſh an aſtringent taſt, that it almoſt ſtrangles one, but being then gather'd and kept till* October *it eats as well as a* Medlar [p]. Which deſcription being agreeable, and very ſufficient, I forbear any other.

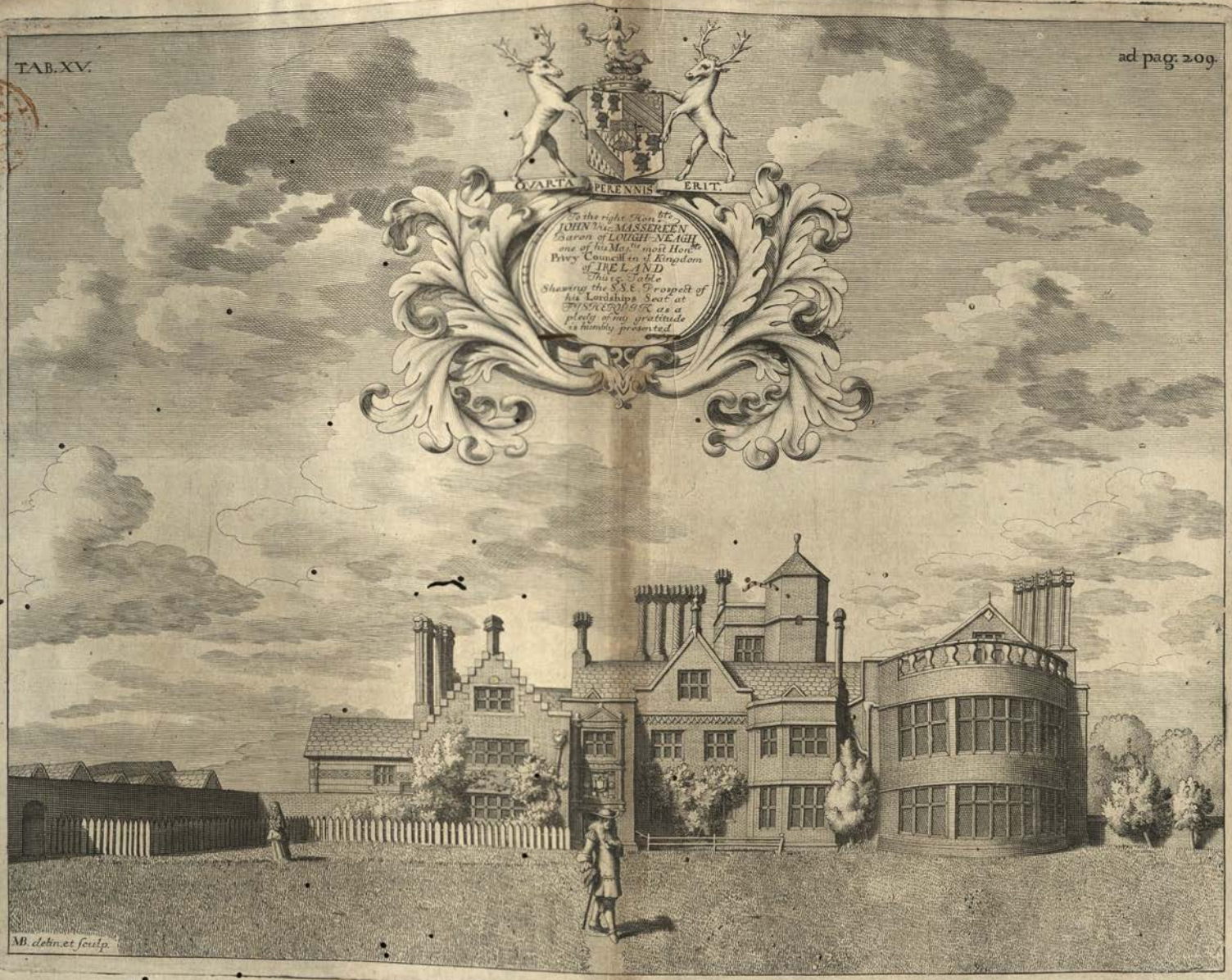
24. This I ſay is not the only tree not obſerved by Mr. *Ray* to

[p] *Philoſoph. Tranſact. Numb.* 139.

be

TAB. XV.

ad pag. 209.



be of *Engliſh* growth, that I met with in this *Country*, for though he mention the *Firrs* that grow near *Worton* in the Eſtate of the right Worſhipfull Sr. *Charles Skrymſher* of *Norbury*, yet he makes them to be the *Abies conis deorſum ſpectantibus*, which is our common *firr* or *Picea Dodonæi alba ſ. fœmina C. Bauhini*, whoſe leaves are round, all over green, and thick ſet on all ſides of the branches: whereas indeed theſe are the *Abies conis ſurſum ſpectantibus* of *J. Bauhin*, the *Abies legitima vel mas Bellonii*, or the *Abies* of *Parkinſon*, whoſe *cones* or *apples* always ſtand upright, the leaves flat, of a freſh green on the upper ſide, and white underneath, thick ſet on the branches only on two ſides, ſo that they appear flat, and ſhew (as *Parkinſon* will have it,) like the teeth of a comb. Adding withall that they grow every where in *Muſcovy*, *Poland*, *Denmark*, and *Germany*, in ſome parts of *Italy* and *Greece*, and as ſome ſay in *Scotland*; but not in *Ireland* or *England*, ſaving where planted [b]: giving up the *Queſtion*, whether there were ever any growing naturally in *England* at any time heretofore?

25. In all which I fear (through the inadvertency of the Age, and his owne ill luck in not lighting upon theſe,) he will appear miſtaken: for beſide that there is no doubt that theſe *firrs* (which are 36 in number, for I told them often,) ſtood in the hedges and fields where they now grow, when he wrot; in all probability they are *natives* of the place too; which I gather, not only from their diſorderly natural ſituation, and exceſſive natural height, to which planted trees ſeldom arrive; but cheifly from the *ſtooles* or *ſtumps* of many trees, which I ſuſpect to have been *firrs* found near them, in their natural poſition, in the bottoms of *moſſes* and *pooles* (particularly of *Shebben poole*,) ſome of the bodies whereof are daily dug up at *Laynton*, and in the old *pewet poole* in the ſame Pariſh where theſe now grow: ſo that I am apt to beleive, that theſe are only ſome remaines of the old naturall ſtock that grew here anciently, of which more hereafter.

26. As for the *accidents* attending *trees* we find none more remarkable than the *exceſſes* of them, and particularly in their growth, where they happen to be planted in an agreeable ſoil; a *Specimen* whereof we have in the walks befor *Fiſherwick* houſe, whoſe front is here engraven *Tab.* 15. it being the ſeat of the right Honorable *John* Lord *Viſcount Maſſereen*, Baron of *Lough-Neagh*, &c. one of the nobleſt *Patrons* of this work: where the trees planted but few years ſince (I think not much above 20,) are grown to a magnitude (for ſo many together,) almoſt

[b] *Parkinſon's Theatrum Botanicum, Trib.* 16. *Chap.* 96.

beyond beleif. Yet if we deſcend to ſingle inſtances, I was told of two (I think,) that exceed theſe: one growing of an *acorn* ſet in a hedg-row between *Colton* and *Blitheſield* by one *Ralph Bate*, which he lived to ſee a ſtout *Oak* bearing 2 foot ſquare at the butt-end, whereof the firſt ten foot which was ſawed into *boards* (it being lately cut down for building,) contained near a *Tun*. The other was an *Aſh* that grew in *Elford* Church-yard about ten years ſince, which though planted within the memory of man, about 80 years before, had a *body* 7 or 8 foot in *diameter*, i. e. 7 or 8 yards in the girth, the *timber* of it being valued at *thirty pound*.

27. But if we ſtep higher to trees *ſans* date, ſcarce any *County* e're produced ſuch *Monſters* as this; to which the great *Oak* at *Norbury* that grows 'twixt the *Mannor* and the *Windmill*, that is ſix yards in the girth; and the *fair-Oake* now ſtanding in *Cank-wood*, which is nine and ½; are but dwarfs in compariſon: where-of there lyes one (the *trunk* of an *Oak* cut off at the *bole*,) near the *Lodg-Houſe* in *Ellenhall* park, of ſo vaſt a bulk, that my *Man* upon a horſe of 15 hands high, ſtanding on one ſide of it, and I alſo on horsback on the other, could ſee no part of each other: nay ſo far were we from it, that we judged the two talleſt men in the *County* upon horſes of 15 hands could ſcarce have don it. What this *tree* might be in *girth* we could not meaſure, the under part of it being buryed in the ground, but I judg it may be juſt ſuch another *Oak* (only the *trunk* of ~~that~~ grew as it were *triangular*,) as was fell'd about 20 years ſince in *Wrotteſley* park, which as the worthy Sr. *Walter Wrotteſley* (a man far either from vanity or impoſition,) ſeriouſly told me, was 15 yards in the *girth*, and lay ſo high when fell'd that two men on Horsback on each ſide the *tree* could not ſee one another.

28. *Bohuſlaus Balbinus* tells us he meaſured the *body* of an *Oak* in the pariſh of *Chodow* in *Bohemia* juſt of the ſame bigneſs, *viz.* 45 foot in compaſs[1]: how many *Tunns* theſe trees might contain is not related, but I ſcarce think either of them held ſo many, as the prodigious *Witch-Elm* that grew at *Field* in this *County*, and was fell'd within memory by Sr. *Harvey Bagot*, which according to an *original paper* put into my hands by the right Worſhipfull Sr. *Walter Bagot* Baronet the preſent *Proprietor*, and as I had it from the mouth of *Walter Dixon* yet living, who was *ſurveyor* of the work, was ſo very great and tall,

That two able *workmen* were 5 days in *ſtocking* or *felling* it down.

[1] *Bohuſl. Balbini Miſcell. Hiſt. Regni Bohemiæ.*

That

That it fell 120 foot or 40 yards in length.
That the *Stoole* was 5 yards 2 foot *diameter*, i. e.
That the *tree* at the *butt-end* was 17 yards in circumference.
That it was 8 yards and 18 inches, i. e. 25 foot ½ about by *girth meaſure* in the middle.
That 14 loads of *Fire-wood*, each as much as 6 *Oxen* could draw to the houſe at *Field*, being not above 300 yards diſtant, broke off in the fall.
That there was 47 loads more of *Fire-wood* (as large as the former,) cut from the *top*.
That they were forced to piece 2 *Saws* together, and put 3 men to each end, to cut the *body* of it in ſunder.
That there was cut out of it 80 pair of *Nathes* for *Wheels*, and 8000 foot of ſawn timber in *boards*, and *planks*, after ſix ſcore *per Cent*. Which at 3ˢ *per Cent*. came to 12 pounds.

All which is atteſted (as a thing, I ſuppoſe, they foreſaw in a little time would otherwiſe become incredible,) under the *hands* of

Sr. *Harvey Bagot*.	*Lawrence Grews*	Cutters.
William Cowper Steward	*Humphry Chettom*	
Roger Shaw Baylif	*Francis Marſhall*	Stockers.
Walter Dixon Surveyor	*Thomas March*	

29. And as to the number of *Tunns* according to the ſcantlings firſt above mentioned, they computed it to contain (after their groſs *Country* way of meaſure,) 96 *Tuns* of timber; a vaſt quantity indeed for one tree, and well requiring ample teſtimony to render it credible: but whoever will take the pains to caſt it nicely and more artificially, according to the above mentioned ſcantlings, will find that it muſt contain a 100 *Tuns* at leaſt of neat *Timber*, a fift part (which is ſufficient in ſuch large *batts*,) being allow'd for the *waſt* of rind, chipps, &c. For ſuppoſing that this *tree* did taper regularly from ſuch a *baſe*, to ſuch a *length*; multiplying the *area* of the *baſe*, by a *third part* of the length, a 100 *Tuns* will be found a very modeſt account, all allowances for *waſt* being granted that can reaſonably be deſired.

30. How much leſs in bigneſs and number of *Tuns* the *Oak* might be that grew in the *new-park* at *Dudley*, and made the table now lying in the old *Hall* in *Dudley Caſtle* is not remembred, much leſs can it now be computed, but certainly it muſt be a *tree* of prodigious height and magnitude, out of which a *table*, all of one plank, could be cut 25 yards 3 inches long, and wanting but two inches of a yard in bredth for the whole length; from which they were forced (it being ſo much too long for the *Hall* at *Dudley*,)

to cut off 7 yards 9 inches, which is the table in the *hall* at *Corbins-hall* hard by, the ancient ſeat of the *Corbins*, of which *family* my worthy Friend *Tho. Corbin* Eſq; is the preſent Survivor. What this might want in *bigneſs* (I ſay,) of the former tree, is hard now to determine, but ſure it could not want much in *height*; for the *tree* that could bear near a yard *diameter* at 75 foot high, may well be preſumed to run up at leaſt forty foot higher.

31. But whether this equall'd it or no, the *Firr-trees* above mention'd now ſtanding in that part of *Warton* which is in the pariſh of *Norbury*, 'tis likely may; ſeverall of them being preſumed to be about 40 yards high; but one there is amongſt them, which though but 6 yards about, above the ſpurrs; yet runs up to 47 yards ½, at leaſt 7 yards higher then the aforeſaid *Witch-Elm*, as was agreed upon by the admeaſurement of it by three ſeveral perſons at diſtinct times: out of which perhaps as wonderfull a piece of *timber* might be cut, as was out of the *Larch-tree* mentioned by *Pliny*, brought to *Rome* with other *timber* for rebuilding the bridg *Naumachiaria* in *Tiberius Cæſars* time, that contained in length 40 yards or 120 foot, and carryed in thickneſs every way two foot from one end to the other; which the *Emperor* would not uſe, but commanded it to be laid in a *publick place* in open view as a ſingular and miraculous Monument to all poſterity, where it remained intire, till the Emperor *Nero* built his ſtately *Amphitheater*[a]. And yet neither of theſe ſeem to equal the *Firrs* that *Chabræus* mentions were growing in his time in the wood call'd *Thannen-wald* in the Territory of *Bern*, whereof ſome were 230 foot, i. e. above 76 yards high, exceeding the talleſt of theſe in *Stafford-ſhire* by near 100 foot, or full 33 yards[b].

32. Beſide the *exceſſes* of the *Witch-Elm* and other trees in the growth of their *Trunks*, the *exceſs* of their force alſo in that growth, is not altogether unworthy our conſideration; it not being the privilege of the *Palm* alone, *creſcere ſub pondere*: whereof we have a very eminent inſtance, in an old *Witch-Elm* growing on *Powk-Hill* near *Bentley-Hall*, that has embraced and lifted up from the ground with the growth of its root a great Stone of at leaſt 200 weight. But we need not ſo much wonder at this, ſince we have all ſeen the *roots* of trees undermine buildings, (particularly thoſe of the tender *Ivy*,) which could otherwiſe have withſtood not only the *batteries* of *time*, but alſo of the greateſt *attillery*, with ſmall or no damage: ſo great is the force of *inſenſible motion*, in *vegetation*, as well as *Art*. *Pliny* tells us of *Stones* thus embraced and incloſed within *Trees*; and that carryed about

[a] *C. Plinii 2di Nat. Hiſt. Lib. 16. cap. 40.* [b] *Dominici Chabræi Stirp. Schiagraph. in Appendice ad Claſſem 8vam. p. 688.*

women

women with *Child*, they prevent *abortions*, and help them to goe out their full time[u]; which I thought fit to note, that if any body in this *Country* have faith enough to believe it, they might know whither, upon occaſion, to apply themſelves for a remedy.

33. Many other *accidents* there are beſide the aforementioned that have befallen the *Trunks* of *trees* in their *growth*; ſuch as that trees of different *ſpecies* ſhould grow ſo united, as to ſeem to be the ſame, at leaſt to grow from the ſame root: whereof we have a very remarkable *Specimen* in the *broad-Leſow* near *Chartley*, of an *Oak* and an *Aſh* that thus grow together; and in Sr. *Walter Bagots* park there are many *hollies* that grow thus conjoyned at the root with *Oaks*. Other trees there are again that though they grow from *different roots*, are more ſtrangely conjoyned ſome height above ground; and theſe both of the ſame, and different *Species*'s: ſuch are the two *Aſhes* in the way betwixt *Gnoſal* and *Walton-grange*, which though they iſſue out of the ground about 8 foot aſunder, yet are joyned by a *croſs piece* paſſing between them about 4 foot from the ground; much after the ſame manner, and cauſed I ſuppoſe by the ſame means, as the *Gallow-tree* mentioned in the *Hiſtory* of *Oxford-ſhire*[w]. Thus there is alſo an *Aſh* and an *Elm* near *great-Sugnall*, though of different *ſpecies*'s, and iſſuing from *different roots*, yet joyned together about a foot above ground; and at *Drayton Baſſet*, in the walk before the *Manor*, the ſeat of the right Honorable *Thomas* Viſcount *Weymouth*, there grows an *Oak* that ſo intimately claſps a *Thorn*, that the *Thorn* ſeems to paſs through it at ſeveral places. The *Oak* is certainly a very old tree, yet the *thorn* muſt be older, for that having the leſſer body by much, it could never paſs through the greater, but muſt rather be incloſed by it, whence we may conclude (though we know little of the *Age* of *trees*,) that a *thorn* will ſtand as long, if not longer then an *Oak*. But theſe are not ſo remarkable as the former, becauſe their roots not ſo far diſtant.

34. Other *trees* there are that grow ſo *conjoyned*, that they ſeem (after the manner of ſome ſort of *Animals*,) to prey upon one another: whereof I was ſhewn a very remarkable inſtance by the ingenious *William Chetwynd* of *Rugeley* Elq; in a paſture ground in the pariſh of *Longdon*, but by the way ſide leading from *Hanſacre* to *Brereton*, where there grows a very fair *holly* on the *bole* of an *Oak*; and ſo there does much ſuch another in the way betwixt *Womborn* and *Himly* near *beggers buſh*; and in *Womborn* town near the *brook* ſide, there growes a *Yew* thus on the top of an *Aſh*. But the moſt ſignal *example* of this kind, is the large

[u] *C. Plinii* 2^di *Nat. Hiſt. Lib.* 16. *cap.* 39. [w] *Nat. Hiſt. of Oxfordſh. Chap.* 5. §. 78.

fair *birch*, about the bigneſs of ones thigh, that grows on the *bole* of *Oak*, in the Lane leading South from *Adbaſton* Church, which has ſent down its roots in ſix branches perpendicularly through the whole length of its *trunk*, and faſtened them in the ground, which might be ſeen at a hole cut in the bottom of the *Oak*; having eaten out the *bowells* of the old tree (as all the reſt will doe,) that firſt gave it life, and then ſupport. All which are occaſion'd no doubt by the *ſeeds* of thoſe *trees* dropt by *birds* in the mould on the *boles* of the others, that lyes commonly there, and is made of the annual rottings of their own leaves.

35. But of all the accidents that ever befell the *trunks* of *trees*, there is none more unaccountable than their being found in divers *Countries* buryed under ground; as in many of the maritim parts of *Holland*, *Zealand*, *Frieſland*, and *Groningland*[x]: ſo on the coaſts of *England*, in *Suffolk* near *Dunwich*[y]; in the fenns of *Lincolnſhire* and *Yorkshire*, particularly in the Iſle of *Axholm*[z]; and on the coaſt of *Pembroke-ſhire* in *Wales*[a]. And not only on the Sea ſhores, but alſo in divers inland, and ſometimes up-land *Countries* too, as near *Bruges* in *Flanders*; where, as *Boetius de Boot* relates it, they find at ten or twenty ells deep, whole *woods* of *trees*, with their trunks, boughs and leaves ſo diſtinctly appearing, that one may plainly diſcern the ſeveral kinds of them, and the *ſeries* of leaves which have fallen yearly*. Much after the ſame manner as *Scoockius* informes us they find them in the territory of *Peland* near *Bois le Duc* in the province of *Brabant*[b]. And as *Wormius* acquaints us, in the higheſt and moſt craggy mountains of *Iceland*, where no body dares venture to them, but ſuch as have been trained up to climb precipices from their youth, where too they muſt digg ſome ells deep, before they come to them[c].

35. In *England* we have them too in many places far enough from the *Sea*, as in *Chatmoſs* in *Lancaſhire*, ſeveral parts of *Yorkſhire* and *Cheſhire*, and here in many parts of *Staffordſhire*: *viz.* at *Laynton* above mentioned, and the old *Pewit pool* in the pariſh of *Norbury*; in *Shebben-pool* in the pariſh of *High Offley*; in the moſſes near *Eardley*: in the pariſh of *Audley*; and near the town of *Betley*: and all theſe in the high *Country* of the *Moorelands*. They are found too in the lower more *Southerly* parts (but theſe ſtill further from the *Sea*) in *Cranmoor* near *Wrotteſley*; in *rotten-Meddow* under *Wedneſbury-hall*; on *Doreley* Common in the pariſh of *Gnoſall*; in a place call'd *Peatmoore* in the lands of my worthy Friend Mr. *Rowland*

[x] *Mart. Scoockii Tract. de Turffis cap.* 12. [y] *Mr Ray's Obſervat. Topograph &c. p.* 7. [z] *Sr W^m. Dugdales Hiſt. of Inbanking and draining the Fenns chap.* 27. [a] *Camdens Britannia, in Pemb.* * *Boetii de Boot de Lapid. & Gemm. Lib.* 2. *cap.* 158. [b] *Mart. Scoockii Tract. de Tuffis, cap.* 12. [c] *Muſæi Wormiani Lib.* 2. *cap.* 16.

Frith

Frith of *Thorns*; and in the Moores of *Handſworth*: and all theſe in an in-land *County*, the neareſt part whereof is at leaſt thirty, and ſome of the places above mentioned, above *fifty* miles from the *Sea*.

37. Now what ſort of trees theſe are, whether *mineral* or *vegetable*? and if *vegetable*, of what *Species* of trees? and if of this or that *ſpecies*, by what *means* thus *buryed*? are great *difficulties* that have diſturb'd many mens thoughts, and are the *points* I ſhall endeavour to make as clear as I can. That there is a *mineral ſubſtance* call'd *lignum foſſile* found in the *earth* repreſenting the *ſtumps*, and parts of the *trunks* of Trees which never grew above ground like other *vegetables* is very certain; whereof *Agricola* mentions ſome found in the *Biſhoprick* of *Hildeſheim* [d]; and *Pet. Gaſſendus* in the life of *Peireskius* tells us of more found at *Aqua Spartana* in *Italy* An. 1637 [e]. which are thoſe I ſuppoſe *Franciſcus Stellatus Lynceus* has written a whole treatiſe of; *Aqua Spartana* being in *Umbria* in *Italy*, where his was found, of ſome parts whereof he has given us *figures* in *ſculpture*; and *Scoockius* is of opinion that many of the *ſtumps* and *trunks* of *trees* found in *Holland*, *Zealand*, and *Frieſland*, are of this *mineral* ſort of *wood*; for which He brings divers *reaſons*, the cheif whereof are, that moſt of them are found without *roots* or *knots*; without the *marks* of any *boughs* cut off; and that if ever theſe ſubterraneous trees had grown in *woods* (as is preſumed by their numbers) their would have been ſome others found beſide *Firrs* and the *Picea*, eſpecially in the *Low Countries*, where neither of theſe trees were ever known to grow [f].

38. For which very reaſons, but cheifly for the *laſt*, He would have us to believe that the *trees* we find here (which indeed are moſt like *Firrs*) in the *moſſes* of *England*, are alſo nothing elſe but *mineral trees*: and the rather here in *England* than *Holland* it ſelf, becauſe *Cæſar* (ſays He) in his *Commentaries* expreſly tells us, that there was no *firr* in *Britan*. But by *Scoockius*'s favour theſe *arguments* of his, much leſs any of the reſt alleged in the ſame place, are not ſufficient to bring us over to his opinion: for beſide that we find ſeveral of theſe *trees* with their *roots* joyned to them, and the *ſtumps* of their *branches* iſſuing from them; the *timber* of them *ſwims* in water, which *lignum foſſile* will not doe, and is ſtill as lyable to the *Axe*, *Chiſel*, *Saw*, or *Plane*, as any *wood* whatever: ſo far are theſe *trees* found in our *moſſes* here from being *mineral ſubſtances*, and ſo well ſatiſfyed are we that they were once *vegetables*. Much leſs ſtill doth the ſecond *argument* drawn from *Cæſars Commentaries* prevail upon us; for were that

[d] *Geo. Agricolæ de natura Foſſilium Lib.* 7. [e] *Petr. Gaſſendi vitæ Peireſkii Lib.* 5. *ad An.* 1637.
[f] *Martini Scoockii Tract. de Turffis cap.* 12.

concluſive,

concluſive, by a parity of reaſon we ſhould have no *beech* in *England*: for in the very ſame place *Cæſar* alſo tells us, ſpeaking of *Britan*, that there was there, *Materia cujuſq; generis, ut in Gallia, præter abietem et fagum* [g], than which laſt, there is no other wood more plentifull; ſo little heed is there to be given to that *teſtimony* of *Cæſar*.

39. Yet ſo far has this, with the preſent unlikelyhood that *firrs* were ever *natives* of *England*, prevail'd upon ſome; that being fully ſatisfyed that theſe *ſubterranean trees* were once *vegetables*, and the moſt likely of any ſort to be the *trunks* of *firrs*; they have rather fancyed (than that ever they grew here) that they were brought hither from *forraign parts* by ſome vaſt *deluge*, and particularly that of *Noah*, and laine here ever ſince in theſe *low moſſes*, whence the water went off laſt, when *God ſtopped the windows of heaven, and the fountains of the deep*, and *cauſed a wind to paſs over the earth, that the waters were aſſwaged* [h]. Nor ſeems it very impoſſible they ſhould lye ſo long, ſince the plenty of *bitumen* wherewith theſe *moſſes* abound, may well be preſumed to have preſerved them as well, as it has the dead carcaſes of the *Ægyptians* for thouſands of years. But that which renders it unlikely, that I ſay not impoſſible, they ſhould be brought from forraign parts by *Noah's* flood is, that we ſhould then have found them indifferently in all *vales* alike, in the *South* as well as *North* of *England*, than which nothing leſs: for who ever heard of them in the *vales* of *Eveſham* or *Ayleſbury*? in the vales of *white* or *red horſe*? though as fit for their reception as any of the *moſſes* aforemention'd.

40. Beſide ſuch of theſe *trees* as are met with without their roots, appear either to have been *burnt* aſunder near the ground, or are found with the *marks* of the *Axe* ſtill remaining upon them whereby they were ſever'd from their *ſtooles*, which are alſo found now ſtanding in the ſame poſture of *growth* as when the *trees* ſtood upon them, as may plainly be ſeen in *Shebben pool* in a dry *Summer* when the waters be low, where are the *ſtumps* of ſeveral, which upon examination I found to be the ſame wood with that of the *trees* found at *Laynton* and the old *Pewit pool* above mention'd. And Mr *Skrymſher* of *Aqualat* alſo told me he had of theſe *ſtooles* in the *black Lake* near *Aqualat meer* in the ſame poſture; and ſo they are found in the *Iſle* of *Axholm* [i]; which are no ſlight arguments that theſe trees were not farr fetch't, of whatſoever kind they may be, nor required ſuch a *flood* as that of *Noah* to bring them hither.

[g] *Jul. Cæſar. Commentar. de bello Gal. Lib. 5. ſub initium.* [h] *Gen. chap. 8. v. 1.* [i] *Philoſoph. Tranſact. Numb. 67.*

41. Which

41. Which has driven others, who are better ſatisfy'd that this *moſſ-wood* (as ſome call it) grew not farr from where found, than they are that 'tis *Firr*, to think it muſt rather be the timber of *Birches* or *Alders*, trees that delight to grow in ſuch moiſt places, which being ſoak't ſo many years in a *bituminous* turf, may become at length ſo well impregnated, as to imitate *Firr* both in the ſmell and burning; which too are more agreeable to the ſizes of theſe *ſubterranean trees* than *Firrs* are, there being few of them found above a foot *diameter* at the butt-end, whereas *Firrs* ſometimes grow here in *England* (as may be ſeen at *Norbury*) to be two yards in *diameter*. To which it may be anſwer'd, that one reaſon why theſe *ſubterranean trees* are found ſo ſmall, may be, that all what we now find, is only the *heart* of the tree, which was much bigger before the *ſapp* was conſumed; which too may be the reaſon that though they are commonly found ſmall, yet they are very long, ſeveral having been taken up in the *Iſle* of *Axholm* in *Lincolnſhire* 30 yards long; and one not many years ſince by *Robert Brown* of *Haxey* 36 yards in length beſide the top, lying very near its root which ſtood as it grew, from which it was burnt aſunder and not cut from it [k], as many in this *County* ſeem alſo to have been.

42. The very *length* of which trees ſeems concluſive enough (whatever may be thought of ours in *Staffordſhire*) that they never were the *trunks* of *Birches* or *Alders*: though I have an argument too perhaps altogether as cogent, that ſome of ours in *Staffordſhire* muſt alſo have been *Firrs* as well as they, there having been one of them taken up in *Peatmoore* by Mr *Brown* of *Footerley* and ſent to Captain *Lane* (who alſo well remembers the thing) that had its branches iſſuing from it in a *circular* form at *annual* diſtances, as all *Firrs* have, but *birches* and *alders* never. Not to mention again that in *Staffordſhire* firrs yet ſeem to grow naturally (as was ſhewn §. the 25 of this *Chapter*) not far from *Laynton* and the old *Pewit poole*, where they are found underground; which perhaps might be young trees not worth notice, when the others were cut down, and have remained ſince untouch't to this very day.

43. It being plain then that theſe *trees* thus found underground, are neither *lignum foſſile*, *Birches*, or *Alders*; and that 'tis unlikely they ſhould be left in the places they now are, by *Noah's*, or any other flood whatever: it remains only that we ſhew the moſt probable cauſe of their being thus buryed in divers parts of the *Nation*. Which that I may doe with all brevity and clear-

[k] *Philoſoph Tranſact. Numb.* 67. *and Sr William Dugdale's Hiſt. of Inbanking and draining the Fenns Chap.* 27.

neſs, I muſt diſtinguiſh between thoſe found near the *Sea coaſts*, and thoſe in the *inland Countries*; the former no doubt being overthrown and covered, either by the violent encroachments of the *Sea* if near the *ſhoar*, as thoſe on the coaſt of *Pembrok-ſhire* [l]; and the wood that ancient writings mention was a mile and ½ to the *Eaſt* of *Dunwich*, which is now ſo farr in the *Sea*, and may poſſibly ſome time or other be diſcover'd again in ſucceeding ages by ſome *raking ſtorm* [m] as thoſe in *Pembrok-ſhire* were, in the time of *Hen.* 2. Or elſe if further within land in a flat *Country* ſuch as the *fenns* of *Lincoln-ſhire*, ſuch effects may follow from the ſtoppage of the mouths of *Rivers* (as the learned Sr. *William Dugdale* conjectures) by vaſt quantityes of *Mudd* and *Sand* brought into them by *Tides*, ſo that the waters recoyling and overwhelming ſuch flat *Countries*, may eaſily ſo looſen the roots of the trees by overmuch moiſture, that the next wind muſt needs overthrow them, and bury them at length in the *filth* which the *Rivers* and *Sea* have joyntly contributed ever ſince and mix'd with the ſtagnant water, to make ſuch *Fenns* [n]. And thus I ſuppoſe the woods of *Holland* and *Brabant* might be cover'd anciently by the choaking of the *Rhine* near the *Arx Britannica*, and ſo in ſome of the *Moſſes* and *Fenns* of *England*.

44. But where they are found in *inland Countryes* fenced from the *Sea* with *hills*; or in Mountainous parts, ſuch as thoſe of *Iceland*; the caſe muſt needs be different: whether *Firrs* are found alone, as 'tis commonly in *Stafford-ſhire*; or mixt with other *timber*, as in ſome parts of *York-ſhire*; whether burnt, or cut off at the *Kerf*, as in both places, the ſtumps ſtill remaining in the ſame poſture they grew in the firm Earth below the *moores*. That *Firrs* ſhould be found any where alone, ſeems indeed ſomewhat odd, there being other *timber* enough near all the places I have yet ſeen, where they are ſo found: but if a relation be true that I met with in my travells, which as I was told had foundation too in ſome *ancient writings* in the hands of the right Honorable the Lord *Viſc. Gormanſton* firſt *Viſcount* of *Ireland*, the caſe is not difficult; only admitting that theſe *Firrs* were never Natives of *England*, but planted here (as the ſtory informes us) by the *Danes* and *Norwegians*. Who when they had gotten good footing in the Land, as they had for many years; like other *Conquerors* endeavoured to make *this* as like their own *Country* as they could, and planted theſe *Firrs*. Which after they had grown for about 200. years, either upon the total deſtruction of

[l] *Camden in Pembr.* [m] *Mr. Ray's Obſervat. Topograph &c. p.* 7. [n] *Sr. William Dugdale's Hiſt. of Inbanking and draining the Fenns. Chap.* 37.

them throughout *England* in a day, in the time of King *Ethelred*°; or their final loſs of all dominion here, after the death of *Hardi-Canute*; that no *memorial* whatever might remain of them, the *trees* they had planted were alſo cut down, and as many of them as grew in low moiſt lands (lying inconvenient for portage,) neglected, and ſo thus cover'd in proceſs of time by *atterration*; thoſe cut down upon the hills and higher grounds (lying readyer at hand,) having been ſpent in divers uſes, many ages agoe.

45. For the better underſtanding of which new doctrine, let the *Reader* take notice, that the low grounds where theſe trees are now found, when they ſtood and flouriſh't, in all probability were tolerably dry land; for the trees whilſt growing (notwithſtanding the moiſture ſhot into the valleys then, as now,) continually ſpent it in their nouriſhment, and their as conſtant exhalations; which when cut down, there being no expence for it, the *valleys* at length grew into *pooles*; the waters whereof being thickend with perpetuall *deterrations*, or Earth brought from the *hills* and *higher grounds* by ſhowers in wet, and winds in dry weather, they came at laſt to be *Moſſes* or *Fenns* thus covering the trees as we now find them: which I take to be the firſt original of many of our *Moſſes*, though afterwards they increaſe by new graſs and ſedg annually growing upon the rottings of the old of the former year, and ſo onward.

46. Other *Moſſes* there are too made upon the *ſtoppage* of *ſprings* by the like *deterrations*, or falls of Earth, and the annual rottings of the graſs, ſedg, &c. growing upon it. Now that there are ſuch *deterrations* or perpetual diminutions of all *hills* (except the rocky,) by every ſhower and wind, ſo that they all grow lower, and the *valleys* higher; we have a remarkable inſtance (beſide thoſe above mention'd Chap. 3. §§. 11, 12,) near the *City* of *Gloceſter*, where there was a *hill* that within memory interpoſed it ſelf to that height 'twixt it and *Churcham*, that People were wont to goe up into the upper roomes of *Churcham* Manor houſe to ſee the pinnacles of the *Cathedral* of *Gloceſter*; whereas after ſome few years they could ſee them on the ground: and as I was inform'd by the Reverend Dr. *Gregory*, *Rector* there, and *Prebend* of *Gloceſter*, whereas about 12 years ſince they could ſee out of the *Church-yard* at *Churcham* but down to the top of the *upper windows* of the *Steeple*, they can now An. 1684. plainly ſee the *leads* of the *Iſles* of the *Church*, with moſt other *Churches*, and ſome *houſes* in the *Town*. So great have been the *deterrations* from this *hill* in a few years, and no queſtion are ſo

° *Joh. Speed's Hiſt. of great Britan. Book* 7. *Chap.* 44.

from all others, in proportion to the *qualities* of their reſpective *ſoiles*.

47. Whether the *Hiſtory* above mention'd (it ſuppoſing *firrs* no natives of *England*,) or the method dame *Nature* ſeems to uſe in making *Moſſes* and burying timber, gain belief of the *Reader*, ſhall not concern me much, for if they ſerve only for his *diverſion* I am abundantly ſatisfyed: there being many other cauſes aſſignable of ſuch *waſt* of *timber*, and the *ſepulture* of it; ſuch as making room for *Agriculture*, which was done in the inland parts of *Kent* no longer agoe then our *Grandfathers* days, where they cut it downe and made trenches by the ſide of each tree, and ſo tumbled it in, its ſale not being worth the portage even there, ſo few years agoe [p]. So they cut and burn it down (for the greater expedition,) at this day in *Muſcovy* for the very ſame reaſon, as I gueſs ſome of this might be, ſeveral of the trees ſtill appearing to have been *burnt*, though they have lain ſo long in theſe *Moſſes*; or elſe if cut down for uſes, *warrs* might come on (which were anciently very frequent,) and prevent what 'twas deſign'd for, either by the death of a ſingle perſon, or ruin of a *Family*; ſo the timber ſtill lying where 'twas firſt fell'd, might quickly be overgrown, and at length forgotten.

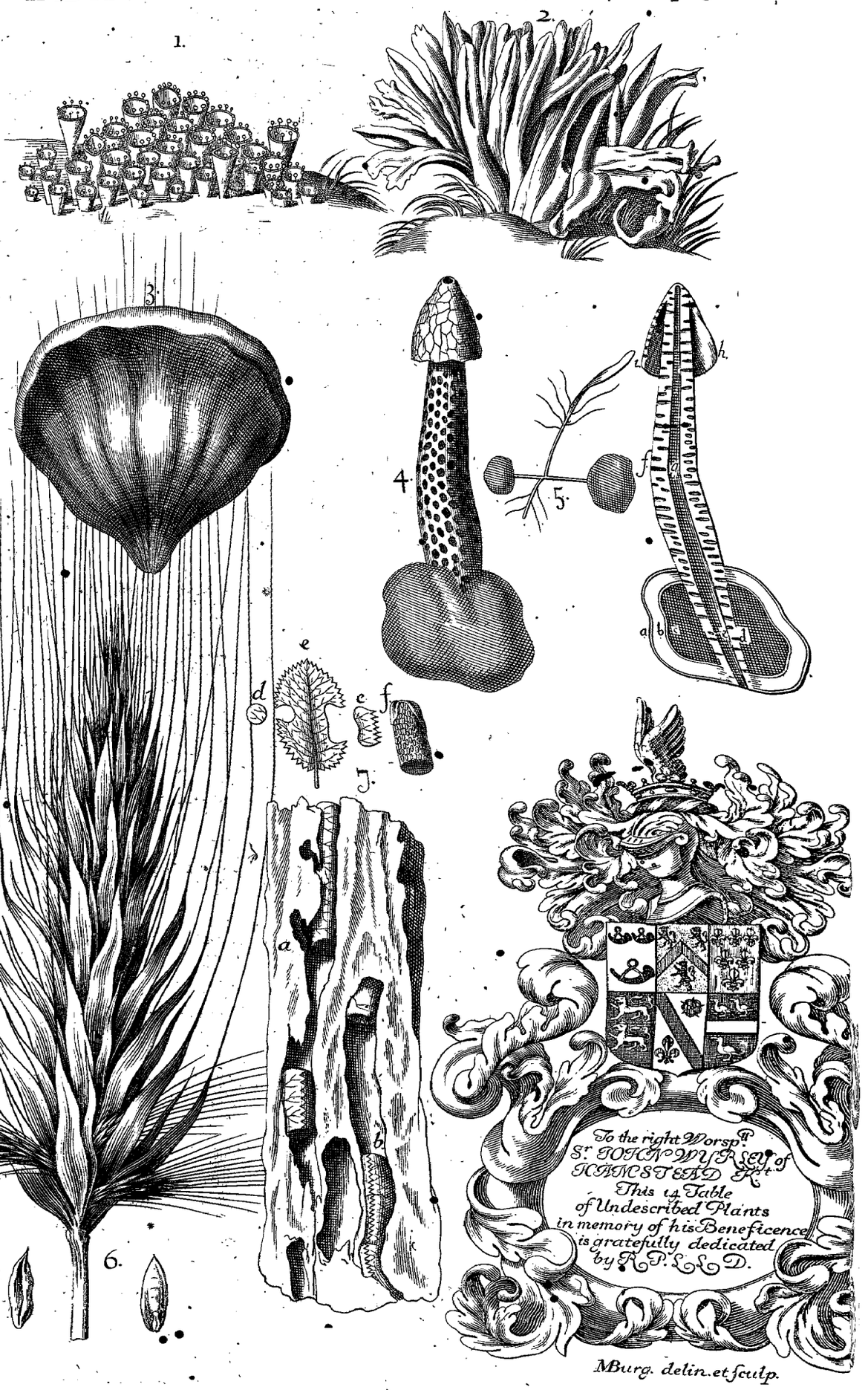
48. Which how ſoon it will be done, and how faſt theſe *Moſſes* grow, we have a clear evidence in a parcell of *timber* cut down near *Biſhops-Caſtle* in the *County* of *Salop* by Sr. *Robert Howard* in the late civil Warr, which as the Reverend and learned Mr. *Obadiah Walker Maſter* of *Univerſity College* told me, being neglected by reaſon of the *warr*, in ſix years time was half overgrown by ſuch a *moſs* where it lay: though by the way it muſt be noted, that ſuch weighty bodys as *timber*, ſink much more in proportion the firſt years, than ever they doe after: for it is probable from another *inſtance*, communicated by the ſame worthy perſon, that theſe *moſſes* doe not riſe much above an inch in a year, from a lump of *Coynes* of *Edward* the fourth of *England* (ſuppoſed to be loſt in a purſe or cloth now rotted away,) taken up in ſuch a *moſs* in *Yorkshire* 18 foot deep, which being about 200 years ſince, whoever pleaſes to compute it, will find that this *moſs* grew but about one foot in eleven years, i. e. But one inch *per annum* and ½ *proxime*.

49. Hitherto having conſider'd trunks of trees in the whole and exterhally only; let us next look into them, and there we ſhall find perhaps as odd *Phænomena* as any attending the former: witneſs a rotten *Crab-Tree* (which I ſhall not reckon amongſt fruit trees, it growing wild,) cleft aſunder by a ſervant of *Francis*

[p] *Nat. Hiſt. of Oxfordſh. Chap.* 6. §. 56.

Wolferſtan

TAB. XIIII. ad pag. 221.



Wolferſtan Eſq; ſomewhere in the grounds near *Statfold*, a part whereof he ſent me hither to *Oxford*, wherein there are ſeveral *cylindraceous cavities* generally running parallel with the grain of the wood, except where they communicate with one another, and where the entrance is into them; and theſe for the moſt part fill'd with *pellets* or *Cartrages* of the ſame forme, of an inch, and ſometimes of an inch and ½ long; made not of the *leaves* of the ſame *tree* wound up cloſe together, as Mr. *Wolferſtan* thought, but plainly of the *Roſe*; (though they are ſo little ſcrupulous in the choiſe of their leaves, that they will ſometimes make uſe of exotic plants [q];) the ſide *leaves* always being of an *oblong* figure, and thoſe of the ends *round*, but bent to a *convexity* at one end, and a *concavity* at the other, the number of both uncertain: all which if the *Reader* pleaſe to look back to *Tab.* 14. *Fig.* 7. He may ſee repreſented in *Sculpture*: where *a* ſhews the piece of rotten *Crabb-tree*. *b*, a ſingle *Cartrage*. *c*, one of the *ſide* leaves. and *d*. one of the *end* leaves, both as eaten out of the *Roſe-leaf* at *e*, which how performed; by what *Animal*; and for what purpoſe; remains next to be conſidered.

50. Wherein I ſhall be ſhort, the main having been diſcoverd already by Dr. *Edmund King* (who had ſuch *Cartrages* ſent him in a piece of old *Willow* by Sr. *John Bernhard* of *Northamptonſhire*,) and *Francis Willoughby* Eſq; who had them ſhewn him by one Mr. *Snell* near *Aſtrop* in the ſame *County*, alſo in old *willow*; who unfolding the leaves and examining the inſide of the *Cartrages*, found in the *concave* end of ſome of them, white *maggots*, in others great numbers of *mites*, &c. By which *maggots*, being kept till *Summer*, they found the whole operation to have been performed by *bees*, to ſecure their *eggs*, and ſuch proviſion as is neceſſary for the *Nymphæ* (*i.* e. when they become *maggots*,) in winter; which in *Summer* all turned to *bees*, eat their way forth, and ſo took their flight [r]. Of the corruption of which *bee-maggots* or *Nymphæ*, when they happen to miſcarry, are bred (ſays Mr. *Willoughby*) 1. Little *hexapodes*; 2. *Maggots* which produce *flyes*; 3. *mites*, which produce perhaps *millipedes*, *Xylophthori* or *vermes arborei*, or *Scolopendræ*, ſuch as were indeed found in this rotten *Crabb-tree* by Mr *Wolferſtan*, and thought to be the *operators* of theſe *Cartrages* [s]; but had he kept any to their due time, he would have found ſome of the *Nymphæ* turned to *bees*, and ſome of them corrupted into *mites*, &c. As I after did, as in the *Cartrage* at *f*. Theſe having all *ſtings* like other *bees*, Dr. *King* thought no other then the *common bee*; but Mr. *Willoughby* more nicely conſidering their *ſhape*

[q] *Philoſoph. Tranſact. Numb.* 160. [r] *Philoſoph. Tranſact. Numb.* 65. [s] *Ibid.*

and *forcipes*, would not allow them to be the common *hony-bee*, yet does not aſſigne of what *ſpecies* it is, which I wonder at, ſince upon an ordinary ſearch he might have quickly found it to be the *Muſca apiformis*, which indeed is of a larger ſize than the *common bee*, has a ſort of *ſting*, but a very imperfect one, leſs virulent by much than thoſe of *hony-bees*: which being all I have to add (above the neceſſary deſcription,) more than what has been diſcoverd by Dr. *King*, Dr. *Liſter*, and Mr. *Willoughby* in the *Philoſophical Tranſactions* [t], and the *Journal des Scavans* [v], I referr the *Reader* thither for further intelligence.

51. Yet more ſtrangely than theſe have other *Animals* been found in the *body* of a *tree* ſomewhere near *Biddulph*, where two *workmen* ſawing the *body* of a *ſolid Oak*, one of them at length perceived *blood* to follow the *Saw*, which though it ſtartled them not a little, yet reſolving to goe on and ſee the iſſue, when they had cut on to the end of the *batt*, they ſplit it aſunder, and found the *Saw* had paſt through the body of a *Hardiſhrew* or *Nurſrow* (as they here call them,) i. e. a *field-mouſe*, two others that lay by it, eſcaping away alive as ſoon as the *tree* was ſplit, which being examin'd and found in all parts ſound, the caſe remains an inexplicable *riddle* to all thereabout to this very day. But me-thinks to any one that conſiders the ſuperſtitious *Cuſtom* they have in this *Country* of making *Nurſrow-trees* for the cure of unaccountable *ſwellings* in their *Cattle*, the thing ſhould not ſeem ſtrange. For to make any tree, whether *Oak*, *Aſh*, or *Elm* (it being indifferent which) a *Nurſrow-tree*, they catch one or more of theſe *mice* (which they fancy bite their *Cattle*, and make them ſwell,) and having bored a hole to the *center* in the *body* of the *tree*, they put the *mice* in, and then drive a *pegg* in after them of the ſame *wood*, where they ſtarving at laſt, communicat forſooth ſuch a *virtue* to the *tree*, that *Cattle* thus ſwoln being whipt with the boughs of it, preſently recover: of which *trees* they have not ſo many neither (though ſo eaſily made, but that at ſome *places* they goe 8 or 10 miles to procure this remedy.

52. Now though it may be improbable enough that the *ſwellings* of their *Cattle* ariſes from the *bites* of theſe *mice*, but rather from the *Sting* of the *Bupreſtis* or *Burſt-cow*; the *Pityocampe* of *Dioſcorides* [w]; the *ſtaphylinus* of *Ariſtotle* [x]; or thoſe red *Phalangious ſpiders* like *Cantharides* mention'd by *Mouſet* [y]; all which have been obſerved to be pernicious to *Cattle*: yet what hinders (ſince 'tis apprehended that theſe *mice* do it,) but one may well imagine,

[t] *Philoſoph. Tranſact. Num.* 65. 74. 160. [u] *Journal des Scavans June* 22. 1682. [w] *Dioſcorid. de Material. Medicina. Lib.* 6. *cap.* 8. [x] *Ariſtot. de Hiſt. Animal. Lib.* 8. *cap.* 24. [y] *Tho. Mouſeti Inſect. Theatri Lib.* 2. *cap.* 12.

ad pag. 225.

To the Worsp.ll
the generous & much honored
Gent. JOHN OFFLEY of
HADDESLEY Esq.
This view & Table
Shewing the S.E. Prospect of
HADDESLEY MANOR
taken from the Garden side, &c.
the lowest obeysance is
humbly presented by
[illegible]

M. Burghers delin. et sculp.

imagin, that ſome perſon not farr diſtant might according to the ſuperſtitious *cuſtom* of the *Country* make this *Oak* (unknown either to the *owner* or *workmen*) a *Nurſrow-tree* but a little before it came to be cut down and ſawn aſunder, by *pegging* in theſe *mice*: Juſt as the *Iriſh* ſerve the *Connough-worm* (a ſort of *Catterpiller*) which they think *poyſons* their *Cattle*, though it have no poyſon in't, which they ſhut up in a hole thus bored in a tree, where when the *worm* is dead, the *bark* & *leaves* of that *tree* bruiſed and ſteeped in water, and given to the *Cattle* they apprehend thus poyſoned, ever after gives them an infallible *cure*[z]. To which let me add the *ſuperſtitious veneration* that ſome People give in this *Country*, eſpecially in the *Moorelands* amongſt the ancienter ſort, and ſometimes thoſe of pretty good faſhion too, to the *Fraxinus ſylveſtris* or *Quicken-tree*, which they firmly believe will certainly preſerve them from all *faſcinations*, and *evill ſpirits*; upon which account many are very carefull to have a *walking ſtaff* of it, and will ſtick the boughs of it about their *bedds*. But of theſe *trifles*, I fear, more than enough.

53. Which is all concerning *whole trees* and their *trunks*, but that in generall the *timber* of this *Country* (though much of it has been deſtroyed of late years) is as *large* and *good* perhaps as in any part of *England*; witneſs the very great quantity of very good *timber* in the *park* of the right Worſhipfull Sr. *Walter Bagot*, amongſt which the *Queche-Oaks* are very remarkable: But the *timber* that ſurpaſſes all in the *County*, both for quantity, greatneſs, and goodneſs, is that in the *park* at *Madeley-Manor*, the ſeat of that courteous and generous Gentleman *John Offley* Eſq; which in memory of his many and ſignal favours, is here engraven *Tab.* 16. where in the firſt place, there is ſo much, that as it has been computed by indifferent judges, the whole has been thought worth 20000 pounds ſterling; out of which might be culled 1000 trees, worth 8000 pounds; and out of theſe again 100, that ſcarce would be ſold for 1500 pounds; Not to mention the great quantities of excellent *timber*, to be ſeen in many other *parks* all over the *County*.

54. Beſide the unuſual accidents of whole *trees* and their *trunks*, there are ſome alſo which have happen'd to their *branches*, *fruits*, and *leaves*; amongſt which I cannot but reckon a great parcell of *Matrices* or *Inſect-husks* of the *purple-Kermes* kind, adhering not only to the underſide as uſually, but ſet quite round a branch of *Thorn*, found (and given me by the Worſhipfull Capt. *Tho. Lane* of *Bentley* Eſq.) at great *Sarden*: which are not the *excreſcencies*, much leſs the *fruit* or *berries* of any

[z] *Philoſoph. Tranſact. Numb.* 168.

tree,

tree, as the *Scarlet-Kermes* has been too long beleived to be of the *Ilex*, but artificial things contiguous to the plants, made there by *Inſects* to preſerve their *Eggs* and nouriſh their *young*, as has been clearly demonſtrated by the learned Dr. *Liſter*[a], a man wonderfully happy both in natural diſcoveries, and impoſing ſuitable names, as he has done to theſe of *Patellæ Kermi-formes*, from their form, and manner of ſticking to the *branches* of many ſorts of *Vegetables*, juſt as *patellæ* do to *rocks*; and their giving a *purple* or *murrey* tincture; which they performe beſt when the *Inſect* is *in vermiculo*: for when the *Inſect* comes to maturity, the *Husk* grows dry, and the dye ſeems to be ſpent, as it was in theſe of *Sarden* before I had them, ſo that I could neither tell what *colour* they yeilded, nor what *Inſect* they might be made by; if by the *bee-kind*, it muſt be a wonderfull ſmall one. the *patellæ* of ours being much ſmaller, than any of thoſe deſcribed by Dr. *Liſter*.

55. Yet the ſame Dr. *Liſter* as fortunate as he has been in the above mention'd diſcovery; as himſelf confeſſes, could never diſcern (whatever diligence he uſed) any *Eggs* in the center of that *by-fruit* that grows on the leaves of the *Oak*, which we call *Galls*, or *Oak-balls*; but a *worm* conſtantly, even at their very firſt appearance[b]; not doubting however but that diligence would ſome time or other diſcover the *Eggs* themſelves: which was indeed happily done An. 1680 by that curious Obſerver *Walter Chetwynd* Eſq; now *high-Sherriff* of the *County* and his ingenious Chaplain Mr. *Charles King* Student of *Ch. Ch.* who by the help of a *Microſcope* obſerved ſeveral minute *Eggs* in a ſmall *Oak-ball*, taken from the ribbe on the back-ſide of an *Oak-leaf* gather'd in the field below *Ingeſtre* houſe; whence it plainly appears that though it be true that theſe *by-fruits* doe grow up together with their reſpective *worms* in them, from ſmall beginings till they arrive at their perfection; and that theſe *worms* are furniſhed with food in, and from them: yet that neither the *plants* on which they grow, nor their *excreſcenſces*, doe any way contribute to the generation of theſe *inſects*, as *Redi* imagin'd[c]; but that they have their *origin* from a *parent-Inſect* which firſt fix'd its *Egg*, where the *Gall* roſe and included it.

56. As the *accidents* attending the leaves of *herbs* and *ſhrubbs*, were cheifly in their variation from the ordinary colour, ſo it is in *trees*; and I ſuppoſe may be met with, one where or other, in almoſt all kinds of them. Near *Hammerwich* in the high-way growing over a pond, I found a *Holly-ſhrub* bearing leaves prettily edg'd with yellow; and was told of others near *little-Aſton* ſtri-

[a] *Philoſoph. Tranſact. Nnm.* 71, 72, 73. [b] *Philoſoph. Tranſact. Num.* 75. [c] *Franc. Redi de generat. Inſectorum pag.* 234.

ped

TAB. XVII.
ad pag. 225
the virtuous and most
accomplisht Gent:
S.r WALTER BAGOT Bar.t
This is Table
Being the W. & by N. Prospect
of BLITHFIELD HALL
taken from the Tarras in the
Garden, in memory of his
Beneficence is thankfully
dedicated by
R. P. LL. D.
MBurghers delin. et sculp.

ped with the ſame colour, whereof we have plenty here at the *Phyſick-garden* at *Oxon*; and in the fine gardens at *Ingeſtre*, the *leſſer Maple* grows thus curiouſly ſtriped. Nor doe theſe *ſtripings* only affect the *inferior* ſorts of *trees*, but *timber trees* alſo, as may be ſeen in a large *Aſh* that grows in the hedg row (by the high-way ſide) of the ſame cloſe where the great *witch-Elm* abovemention'd formerly grew, near *Field-hall*, whoſe *leaves* are ſome of them all *white*, (whence it enjoyes the name of the *white-Aſh*) others ſtriped both *white* and *green*. And in the *Park* of the right Worſhipfull Sr. *Walter Bagot* Baronet, one of the nobleſt *promoters* of this *deſigne*, whoſe ancient and well ſituat houſe at *Blithefield* is here annext *Tab.* 17. there growes an *Oak* near the *Hill-ſtile* with juſt ſuch leaves as his *Aſh* at *Field*, part of them all *white*, and part *white* and *green*: which how it comes to paſs that plants thus vary in the *colours* of their *leaves*, has been ſo often taught already that it would be nauſeous to repeat it, therefore no more of it here[d].

57. After the *Timber*, I proceed next to the *Fruit-trees* of this *County* that have any thing extraordinary either in their *growth*, *flowers*, or *fruit*; for the firſt whereof, there is an *appletree* within the moat of the *Parſonage* houſe at *Leigh*, that ſpreads from boughs end to boughs end 17 or 18 yards, in circumference ſuppoſing them to ſpread uniformly, 54 yards; ſhading in dry weather, and dropping in wet, upon 244 ſquare yards of ground; under which, allowing 3 ſquare yards for a *horſe* to ſtand on (3 yards long, and one broad, ſeeming a competent proportion) and 4 ſquare feet for a *Man*; above *eighty* Horſemen, or 549 Footmen may be ſheltered from the injuries either of *Sun* or *rain*: a vaſt number for an *Appletree*; yet the quantity of *fruit* it ſometimes bears, ſeems equally to demonſtrate the exceſs of its greatneſs, it having born ſome years no leſs then 50 ſtrike of *apples*. To which let me add the odd growth of an old *pear-tree* in that part of *Warton* which is in the Pariſh of *Forton* in the Hortyard of *Edward Low* of that *village*, which though fallen flat on the ground, has 6 or 7 young trees ſprung perpendicularly out of the body of it, in right angles, as it lyes *in plano Horizontis*; each, one with another a foot in *diameter*, and moſt of them 40 foot high.

58. As for *trees* that have any thing remarkable in their *flowering*, the *Peartree* at *Colmoore* at the houſe of the heirs of Mr. *Thomas Hawe*, ſeems to be very extraordinary, which (like *Glaſtonbury thorn*) though in froſt and ſnow, puts forth *bloſſoms* at *Chriſtmaſs*: and ſoe does a peartree in the gardens belonging to

[d] *Nat. Hiſt. of Oxfordſh. Chap.* 6. §. 38. *and Chap.* 7. §§. 13, 14, 15.

the *Caſtle* here at *Oxford:* now what ſhould occaſion the early *flowering* of this *tree*, ſo long before other *trees* of its kind, is hard to determine, this overforwardneſs ſeeming rather to argue an *exceſs* of *vigor*, than an effect of *weakneſs*; though it be worthy notice that all *ſtriped trees*, which are ſick and diſeaſed, doe put forth their *leaves* and *bloſſoms* ſooner, than others of their kind: but ſhould we rather grant it to be an *exceſs* of *ſtrength*, it may nevertheleſs (as all *extremes* are) be a *vice* in the *tree*, it being commonly found in many other trees, that are over early and luxuriant in their production of *flowers*, that they bear little *fruit*, as I have ground to ſuſpect neither of theſe doe.

59. Quite contrary to a *peartree* I ſaw at one *Jane Arnolds* at *Hamſtall Ridware*, that *bloſſoms* and alſo *bears* twice in a *year*; When I ſaw it in *June* An. 1680. it had large *pears* on it, and the *bloſſoms* at the ſame time for the ſecond *Crop*, which they told me would not be ripe till about *Michaelmaſs*, and thus it does every year, like thoſe mentioned in *Oxfordſhire* *: which how it ſhould come to paſs, I can no way divine, unleſs it ſhould ariſe from a ſtrange unaccountable *mixture*, which may ſometimes happen betwixt the woods of the *graft* and the *ſtock*; when either an *early* fruit is grafted upon a *late* ſtock; or a *late* fruit upon an *early* ſtock; the woods whereof growing up joyntly together, yet ſo as not to mix *Sapveſſells*, may both produce *fruit* in their reſpective *ſeaſons*: as I have ſeen the ſame tree doe *Oranges*, and *Limmons* together, and not only upon the ſame *branch*, but in the ſame *individual fruit*, part of it being an *Orange* and part a *Limmon*: wherein I am the more confirm'd, the firſt and ſecond crop of ſuch *trees* as theſe, ſeeming moſt commonly of different *ſpecies*'s, at leaſt are of quite different ſizes, the laſt Crop being always leſs than the firſt.

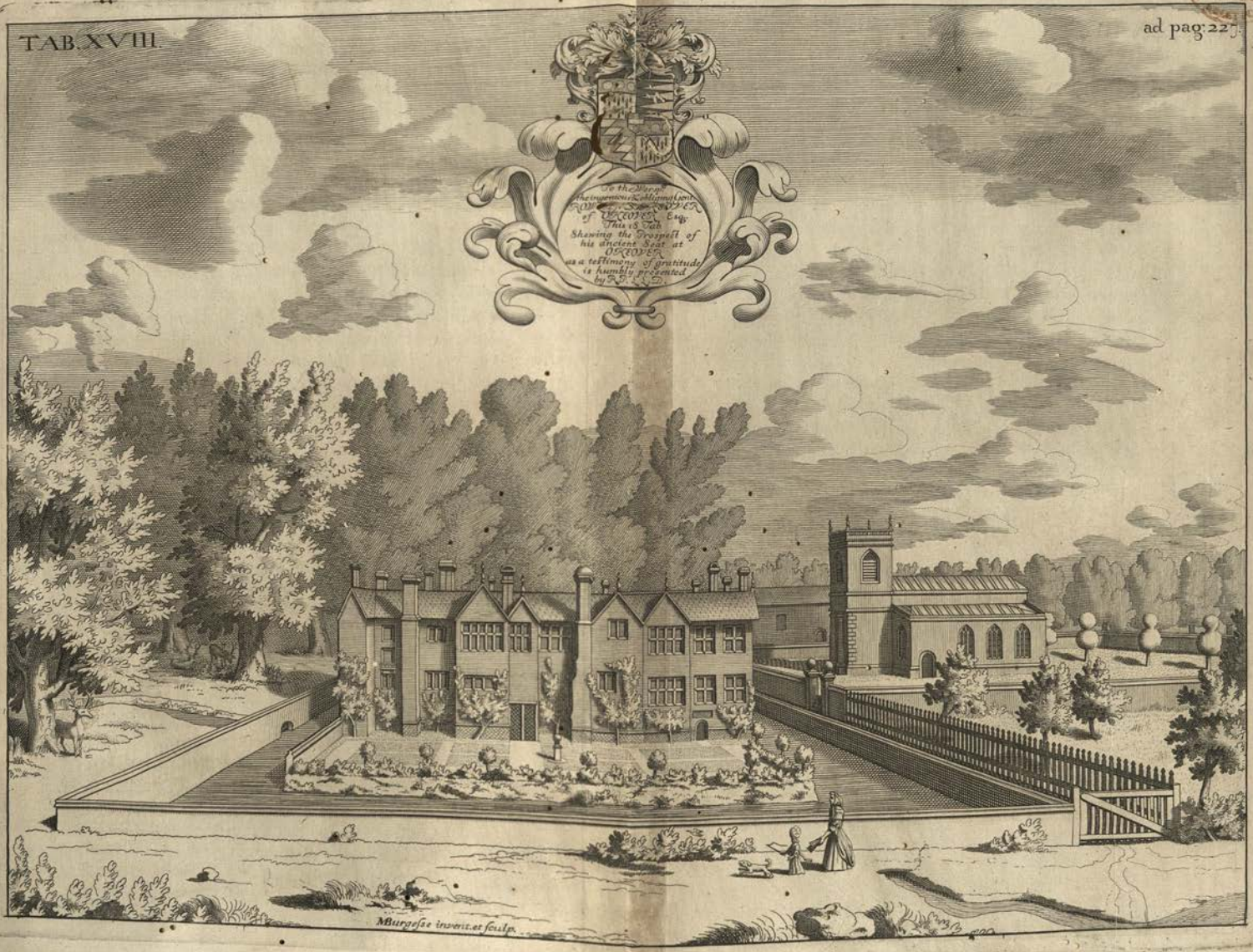
60. And this had been all concerning *fruit-trees*, but that I think it worthy notice that all ſorts of *fruits* both in *Hortyards* and *Gardens* are cultivated here of late years, much more than anciently they were, and at ſome places to that height, that they ſeem to endeavour to equal the beſt planted *Counties*. For *Apples* I ſhall inſtance in the pariſh of *Arley*, where all the grounds and hedges are planted, much after the manner of *Worceſter-ſhire* (into which indeed it runs with a long nook) there being ſcarce a *Cottage* that has not ſome proportionable plantation belonging to it, having all ſorts of *Pippins* of the beſt, and ſo of other fruit; the *Red-ſtreak* indeed thrives not over well with them, but the *Jennet Moyle* exceedingly, inſomuch that 'tis thought that were not their fruit ſold abroad, they could make in this *pariſh* at leſt 200

* *Nat. Hiſt. of Oxfordſhire Chap.* 6. §. 86.

Hogſheads

TAB. XVIII.

ad pag: 227.



Hogſheads of *Cider per Annum*, whereof I drank ſome that was excellent in its kind, at the right Worſhipfull Sr. *Henry Lyttleton* Baronet, a worthy *Patron* of this work.

61. And for *Cherries*, the plantations at *Packington* upon the eſtate of the Worſhipfull —— *Gage* Eſq; are ſo very extraordinary, that they ſeem even to vye with *Kent* it ſelf; the *Trees* being all planted in the *Quincunx* order, thriveing well, and producing fair and well taſted fruit; and this not for a little ſpot or two, but in as large *gardens* as I have ſeen any where, there being one wholy of *Cherries*, of 23 Acres. And for fruits of the *Parterre* or *Houſe-Gardens*, there are as choiſe at *Ingeſtre*, as in moſt gardens of the *South*; though I think the greateſt variety of all kinds is to be found in the *Gardens* of the Worſhipfull *Rowland Okeover* of *Okeover* Eſq; one of the nobleſt *Encouragers* of this *work*, whoſe ancient Seat is here repreſented *Tab.* 18. where there are now growing 60 different ſorts of *Apples*; 20 ſorts of *Pears*; 16. ſorts of *Cherries*; 35 ſorts of *Apricots*, and other *plumms*; and 7 ſorts of *Nectrons* and *Peaches*; of all which I have *Catalogues* by me: but haveing already (I fear) tired the *Reader* with too tediouſe a travell through the *vegetable Kingdom*, I forbear their recitall, and proceed with all ſpeed to the *Animal-one*.

CHAP. VII.

Of Brutes.

UNder the title of *Brutes* I comprehend (as in *Oxford-ſhire*) all *Animals* whatever that have *ſenſe* and *locamotion*, except the *rational*; whether they are the inhabitants of the *Air*, *Water*, or *Earth*; ſuch as *Birds*, *Inſects*, *Fiſhes*, *Reptiles*, and *Quadrupeds*: in the handling whereof as in the *Chapter* of *formed Stones*, I ſhall perſue the *Method* of the whole *work*, and treat firſt of ſuch as have their abode in the *Air*; then deſcend to the *Inhabitants* of the *Waters*; and laſtly conclude with the *terreſtrial Animals*; and in each of theſe *ſpecies* (as in the former *Chapter*) I ſhall conſider only ſuch, as are

1. either wholy undeſcribed, by any *Author* I have yet met with; or
2. have not been noted by the learned Mr. *Willughby* or Mr. *Ray* to be *indigenæ* of this *County*; or
3. have had very extraordinary *accidents* attending them.

Which if ſufficient for a *Chapter* in the ſmall *County* of *Oxford*, there is no great danger but they may be ſo in this, without addition of what relates to *rational Animals*, which I ſhall therefore reſerve for the ſucceeding *Chapter*. And firſt of the *Birds* of this *County*.

2. Which have been ſo nicely inquired into, by the learned and indefatigable Mr. *Willughby* and Mr. *Ray*, that I have met with but two that I can ſafely ſay are wholy *undeſcribed*; which are 1. a ſort of *Swan* they have upon the *Trent* near *Rugeley*, whoſe leggs are never *black*, or rather of that *leaden colour* which other *Swans* are; but of a *bluſhy red* like thoſe of a tame *Gooſe*, whence I think I may take the boldneſs to give it the *Epithet* of *Cygnus Anſeroides*. Theſe at firſt indeed I thought might be *Hoopers* or *wild-Swans* whoſe feet are not *black*, but of a dusky yellow; but when I underſtood that they were as *large* and *white* as the tame *Swan*, which the *wild-Swan* is not; and as the ingenious Mr. *Chetwynd* of *Rugeley* told me, that the *Cygnets* of

ſome

ſome of theſe were as *white* as the *old* ones; I could not then but conclude, but it muſt be a different kind from any yet deſcribed in any *Author* I can find. To which perhaps I might add another *whole-footed water fowle* that they have about *Amerton*, which they call *French geeſe*, and no queſtion they are of the *Gooſe* kind, differing in nothing from the common, but in the *bill* which is *black*, and in the noiſe it makes, which is like that of a *Bittern*: But in all probability it is the *Anſer Cygnoides Guineenſis*[a], ſo call'd I ſuppoſe from the blackneſs of its bill, though I do not find in *Authors* it has the voice of a *Bittern*.

3. Much more ſure am I that a *cloven-footed water-fowle*, a ſort of *Loone* or *Doucker* ſhewn me by my worthy Friend *Francis Wolferſtan* Eſq; in his Parlour at *Statfold*, but killd at *Comberford*, is an *undeſcribed bird*: for though it agree with other *Loons*, in having a narrow ſtraight ſharp-pointed *bill*, no *tail*, ſmall ſhort *wings* diſproportionable to the body, and the *leggs* ſet on ſo near the rump, and ſo far from the *center* of gravity in the bird, that it can neither fly, nor conveniently walk; but ſeems wholy contrived for quick ſwiming and eaſy diving; which is alſo further evident from its broad *flat* leggs and *finned* toes, which though not webb'd together, yet have lateral *membrans* all along both ſides of them, and broad *claws* like *human* nails: though I ſay in all theſe it agree with the *cloven-footed, fin-toed Douckers* that want *tailes* (for there are ſome that haye them) yet it differs in the head from all others I ever ſaw, or could meet in the *books*; it not being only *creſted*, and *horned*, with two long tuffts of feathers, ſet on about the crown of the head; but adorned alſo underneath the *throat* with two as remarkable *tuffts* hanging down like an old-faſhion'd divided beard as in *Tab.* 22 *Fig.* 1. whence it may juſtly claim the name of *Colymbus criſtatus cornutus barbatus*, it being quite different, if we may beleive the *Cut*, from the *creſted Loon* of *Aldrovand*[b]; and the horned one of Mr. *Willughby*[c], which has longer *wings*; and *leggs* not ſet on ſo near the *rump*, as this has.

4. But of unuſual *Birds* not noted by Mr. *Willughby* to be *indigenæ* of this *County*, there are ſeveral that have, and are dayly met with, whereof ſome of the γαμψώνυχες, or greater rapacious diurnal kind, witneſs the *Eagle* in *Beaudeſart Hall* kill'd in the *park*: ſome of the leſſer rapacious kinds, have been alſo found here; ſuch as the *Lanius* or *Collurio*, ſuſpected to be the *Tyrannus* of *Ariſtotle*, the *Butcher-bird* or *Wierangel*, here called the *Shriek* or *French-Pye*, whereof there was one killd at *Sierſcot* in the pariſh

[a] *Mr. Willughby's Ornithology, Book.* 3. *Sect.* 6. *Memb.* 1. *Chap.* 2. §. 5. [b] *Ulyſſ. Aldrovand. Ornothol. lib.* 19. *cap.* 52. [c] *Willughby's Ornithology Tab.* 61.

of *Tamworth*, in the eſtate of the right Honorable the Lord *Viſc. Maſſereen*. There is of them alſo in *Needwood*, and in *Bramſhall* park, they are of the colour and bigneſs of a *Thruſh*, and moſt commonly feed upon *Inſects*; yet often they prey not only upon *ſmall birds*, but even *Thruſhes* themſelves, upon which account they have ſometimes been *reclaymed* by *Falconers* to fly at ſmall game. And for *birds* with ſtreighter, or leſs hooked bills, of the *poultry kind*, that feed on leaves and berries; the *Urogallus minor*, the *Heath-cock*, *Grous*, or *black-game*, is frequent here amongſt the mountains in the *Moorlands*; and ſo is the *Lagopus altera Plinii*, in ſome places call'd the *Gorcock*, here the *red-game*, which lye on the very tops of the mountains, but are not quite ſo common, whence more eſteemed than the former: ſaid only to be found here, in the *Peak* of *Darby*, and mountains of *Wales*; but Mr. *Willughby* ſays they have them too, in *Weſtmorland* and *Yorkſhire*[d].

5. Of unuſual *ſmall birds* here are alſo ſeveral, both of the ſoft and ſlender, and the ſhort hard beak'd kinds; ſuch as the *Hirundo apus* or *black Martin*, here call'd the *Martlet*, which I beleive indeed is the *bird* intended by that name in *Heraldry*, and not the *Hirundo agreſtis ſive ruſtica Plinii*, it having ſo very *long* wings, and ſo *ſhort* leggs and *ſmall* feet, that it cannot eaſily riſe from the ground unleſs it be very plain, and free from *graſs*; wherefore it either always flyes, or ſits upon the tops of *Churches*, *Towers*, or elſe hangs on other *ancient buildings* by its ſharp claws, from which it falls and ſo takes flight: of theſe I ſaw at *Share ſhall*, near *Hilton*, and *Beaudeſart*; where too in a *Quarry* near the houſe, I ſaw the *Hirundo riparia* or ground *Martin*, of a dark-dun or Mouſe-colour, which is the leaſt of all the *Swallow* kind, and makes holes into the ſides of *banks* and *cliffs* about a yard forward in *plano Horizontis*, where it builds its neſt. To which add the *Fringilla montana ſive Montifringilla*, the Ὀρεσπίζη of *Ariſtotle*, the *Brambling* or *mountain Chaffinch*, of the ſhort hard beak'd kind; found plentifully about *Venice*, and deſcribed by Mr *Willughby*[e], but rarely in *England*; this I have, was kill'd and given me by the ingenious Mr. *Miller* Vicar of *Wednesbury* near the *Vicaridg* houſe. Nor muſt the *Coccothrauſtes* or *Groſs-beak* be forgotten, a bird ſays Mr. *Willughby* rare in *England*[f], yet found and kill'd ſomewhere about *Madeley-Manor*, and now in the poſſeſſion of the virtuous Madam *Offley*, a *Lady* that has an excellent *artifice* in preſerving birds.

6. And of unuſual birds frequenting the water, here are alſo

[d] *Ornithology Book.* 2. *Sect.* 1. *chap.* 12. §. 7. [e] *Ibid. Book.* 2. *Sect.* 2. *memb.* 2. *Chap.* 6. §. 2. [f] *Ibid. Book.* 2. *Sect.* 2 *Memb.* 2. *Chap.* 1. §. 1.

divers

divers kinds, ſome of them *cloven footed* and *piſcivorous*, though they build their neſts on the tops of trees; as the *Ardea cinerea* or common *Heron* or *Heronſhaw*, whereof I ſaw divers ſiting on the tops of the higheſt trees in *Norbury* park. *Bellonius* indeed denyes that they breed in *England*, but there are many other inſtances whereby he may be confuted beſide this, in divers parts of the *Nation*, though this I think is the beſt in this *County*. The *Colymbus major* the great *Loon* or *Arsfoot* is alſo found in this *County*, whereof I had one given me by the Honorable Lady *Jane Leueſon Gower*, kill'd ſomewhere near *Trentham*, in all parts correſponding with the *cloven-footed fin-toed Loones* without tailes, deſcribed as above §. 3. of this *Chapter*. Of *whole footed water fowle* the *Avoſetta Italorum* or *Recurviroſtra*, is alſo found here, as well as in the Eaſtern parts of *Norfolk* and *Suffolk*, there having been of them *kill'd* at the black-*Lakes* near *Aqualat*, *eight* of them being ſeen firſt in the morning, and but *ſix* at night when they ſhot; which needs no other deſcription, but that its bill is *reflext* upward, which is peculiar to this bird, ending in a thin ſlender weak point, ſomewhat of the conſiſtence and ſtrength of a *Whale-bone* of the ſame ſize.

7. But the ſtrangeſt *whole-footed water fowle* that frequents this *County* is the *Larus cinereus Ornithologi*, the *Larus cinereus tertius Aldrovandi*, and the *Cepphus* of *Geſner* and *Turner* [g]; in ſome *Counties* call'd the *black-Cap*, in others the *Sea*- or *Mire-Crow*, here the *Pewit*; which being of the *migratory* kind, come annually to certain *pooles* in the Eſtate of the right Worſhipfull Sr. *Charles Skrymſher* Knight to build and breed, and to no other Eſtate in, or neer the *County*, but of this *Family*, to which they have belong'd *ultra hominum memoriam*, and never moved from it, though they have changed their *ſtation* often. They anciently came to the old *Pewit poole* above mentiond [h], about ½ a mile S. W. of *Norbury* Church, but it being their *ſtrange quality* (as the whole *Family* will tell you, to whom I referr the *Reader* for the following *relation*) to be diſturb'd and remove upon the *death* of the *head* of it, as they did within memory, upon the death of *James Skrymſher* Eſq; to *Offley-Moſs* near *Woods-Eves*, which *Moſs* though containing two *Gentlemans* land, yet (which is very remarkable) the *Pewits* did diſcern betwixt the one and the other, and build only on the *Land* of the next heir *John Skrymſher* Eſq; ſo wholy are they addicted to this *family*.

8. At which *Moſs* they continued about three years, and then removed to the *old pewit poole* again, where they continued to the

[g] *Conr. Geſneri de Avibus Lib.* 3. [h] *Vid. ſupra Chap.* 6. §§. 36. 40. 42.

death

death of the ſaid *John Skrymſher* Eſq; which happening on the *Eve* to our *Lady-day*, the very time when they are laying their *Eggs*, yet ſo concern'd were they at this *Gentlemans* death, that notwithſtanding this tye of the *Law* of *Nature*, which has ever been held to be univerſal and perpetual, they left their *neſt* and *Eggs*; and though they made ſome attempts of laying again at *Offley-Moſs*, yet they were ſtill ſo diſturb'd that they bred not at all that year. The next year after they went to *Aqualat*, to another *Gentlemans* Eſtate of the ſame family (where though tempted to ſtay with all the care imaginable) yet continued there but two years, and then returned again to another *poole* of the next heir of *John Skrymſher* deceaſed, call'd *Shebben poole* in the pariſh of *high Offley* where they continue to this day, and ſeem to be the propriety, as I may ſay (though a wild-fowle) of the right Worſhipfull Sr. *Charles Skrymſher* Knight, their preſent Lord and maſter.

9. But being of the *migratory* kind, their firſt appearance is not till about the latter end of *February*, and then in number ſcarce above ſix, which come as it were as *harbingers* to the reſt, to ſee whether the *Hafts* or *Iſlands* in the pooles (upon which they build their neaſts) be prepared for them; but theſe never ſo much as lighten, but fly over the *poole* ſcarce ſtaying an hour: about the ſixth of *March* following, there comes a pretty conſiderable flight, of a hundred or more, and then they alight on the *hafts*, and ſtay all day, but are gon again at night. About our *Lady-Day*, or ſooner in a forward *Spring*, they come to ſtay for good, otherwiſe not till the beginning of *April*, when they build their *neſts*, which they make not of ſticks, but heath and ruſhes, making them but ſhallow, and laying generally but 4 eggs, 3 and 5 more rarely, which are about the bignes of a ſmall Hen-egg. The *Hafts* or *Iſlands* are prepared for them between *Michaelmaſs* and *Chriſtmaſs*, by cutting down the *reeds* and *ruſhes*, and putting them aſide in the nooks and corners of the *hafts*, and in the valleys to make them level; for ſhould they be permitted to rot on the *Iſlands*, the *Pewits* would not endure them.

10. After three weeks ſitting the young ones are hatch't, and about a month after are almoſt ready to flye, which uſually happens on the third of *June*, when the *Proprietor* of the *poole* orders them to be driven and catch'd, the *Gentry* comeing in from all parts to ſee the ſport; the manner thus. They pitch a *Rabbit-net* on the bank ſide, in the moſt convenient place over againſt the *hafts*, the *Net* in the middle being about ten yards from the ſide, but cloſe at the ends in the manner of a *bow*; then ſix or ſeven Men wade into the *poole* beyond the *Pewits*, over againſt

TAB. XIX.
ad pag. 233.
To the right Worp.
S.r CHARLES SKRYMSER
His Maj.ties high SHERRIFF
of STAFFORDSHIRE 1684.
This 19 Table
Shewing the E.N.E. Prospect of
NORBVRY MANOR
and of SHEBBEN POOLE where
the Fewets annually breed, in
Testimony of his Munificence
is thankfully dedicated
by R.F. LLD.
M Burghers delin. et sculp.

againſt the *Net*, with long ſtaves, and drive them from the *hafts*, whence they all ſwim to the bank ſide, and landing run like *Lapwings* into the *Net*, where people ſtanding ready, take them up, and put them into two *penns* made within the *bow* of the *Net*, which are built round, about 3 yards *Diameter*, and a yard high or ſomwhat better, with ſmall ſtakes driven into the ground in a circle, and interwoven with broom and other raddles, as in *Tab.* 19. at the bottom whereof is repreſented in *Sculpture*, the poole, and whole method of taking theſe *Pewits*; and *Norbury Manor* at the top, the ſeat of the *Proprietor*, a moſt generous *Encourager* of this work.

11. In which manner there have been taken of them in one morning 50 doſens at a driving, which at 5ˢ *per* doſen (the ancient price of them) comes to twelve pounds ten ſhillings: but at ſeveral *drifts* that have been anciently made in the ſame morning, there have been as many taken as have been ſold for thirty pounds, ſo that ſome years the profit of them ha's amounted to fifty or threeſcore pounds, beſide what the generous *Proprietor* uſually preſents his *Relations*, and the *Nobility* and *Gentry* of the *County* withall, which he conſtantly does in a plentifull manner, ſending them to their houſes in *Crates* alive, ſo that feeding them with *livers*, & other *entrals* of beaſts, they may kill them at what diſtance of time they pleaſe, according as occaſions preſent themſelſelves, they being accounted a good diſh at the moſt plentifull *Tables*.

12. But they commonly appoint 3 days of driving them, within fourteen days or thereabout, of the ſecond or third of *June*; which while they are doing, ſome have obſerved a certain old one that ſeems to be ſomewhat more concern'd than the reſt, being clamorous, and ſtriking down upon the very heads of the *Men*; which has given ground of ſuſpicion that they have ſome *Goverment* amongſt them, and that this is their *Prince*, that is ſo much concern'd for its *Subjects*. And 'tis further obſerved that when there is great plenty of them, the *Lent-Corn* of the *Country* is ſo much the better, and ſo the *Cow-paſtures* too, by reaſon they pick up all the *worms*, and the *Fern-flyes*, which though bred in the *Fern*, yet nip and feed on the young corn and graſs, and hinder their growth.

13. Other birds there are here that are more commonly ſeen, and doe not only breed, but remain conſtantly in the *Country*, and are therefore call'd *perennial*; which yet many of them have had ſomething extraordinary either in their *colours*, *limbs*, *eggs* or *time* of *production*, that has render'd them remarkable. At *hill-Ridware* I was told of a white *Poppinjay*; and at *Apedale* neat the

houſe of one *John Middleton*, for three or four years together, there were white *Crows* hatch't in the ſame neaſt with *black* ones, whereof ſome they ſold as rarities for *half crownes* a piece: which in all probability muſt come to paſs, by a *hen-crow* of an ordinary colour, being trod by a *cock* of the *Royſton-breed*, or from *Norway*, or *Greenland* where they are commonly white, or *vice verſâ*; as we ſee it often falls out in *doggs* and other *Animals*. Which is further confirm'd to me by a white *Sparrow* kill'd at *Aldrich*, which built about Mr. *Jourdans* houſe there, and produced young ones, ſome white, ſome gray, and others ſpeckled with white and the uſual colour, of other *Sparrows*.

14. And in their *beaks* and *leggs*, I met with ſo many *deformities*, and unuſual *exceſſes*, that it would be endleſs to recount them: the cheif are theſe. In the *Hall* at *Bentley* there is a *Ravens* head whoſe *bill* is crook't both ways, the *Mandibles* croſſing one another, like thoſe of the *Shell-Apple* or *Croſs-bill*, the lower chap turning upwards, and the upper downwards. And in the *Coffee-houſe* at *Lichfield*, I was ſhown another *Ravens* head, whoſe upper *mandible* turned downward, and croſſed the lower; but the under one ſtraight, only much longer than the upper as in *Tab.* 22. *Fig.* 2. At great *Bridgford* there was a *Pidgeon* produced with two heads; and there was a *Pewit* catch't at *Norbury* with 4 leggs. Not to mention a *Gooſe*, I was told, was hatch't at *Shelfield* with three leggs, the third iſſuing from about the rump, and hanging looſe, being of no uſe to the *Animal*, as indeed few of theſe *exceſſes* of *nature* are: which perhaps may ariſe, as *Fabricius* thinks, either from *Ova Gemellifica*, that is, *Eggs* with two *Yolks*, two *Whites*, two *Chalazæ* or *treddles*, two *Cicatriculæ* &c. i. e. that have every thing double[i]; or as *Harvey* rather thinks, when two *Yolks* are included within one *white*; and are ſo joyn'd, that the *Cicatriculæ* expanded, make but one *colliquamentum*[k]: which latter indeed ſeem much the likelyer of the two.

15. Which brings me next to conſider the *Eggs* of *birds*, and their time of *hatching*, wherein I alſo met with divers *Anomalies* of *Nature*: the ingenious Mr. *Miller* vicar of *Wednesbury* amongſt his *tithe-Eggs*, met with one whoſe *Yolk* was as perfectly *white*, as that we uſually call ſoe, the ſeparation betwixt them remaining as diſtinct as in ordinary *Eggs* i. e. He met with an *Egg* with two *whites* including one another, ſuch as *Ariſtotle* calles imperfect, improlific *Eggs*, which will never produce *Chicken*, and *Hieronymus Fabricius*, *Ova centenina*[l]; they being a ſort of *Eggs* (as he

[i] *Hieron. Fabricii ab Aquapedente de formatione Ovi & pulli. p.* 19. [k] *Gul. Harvei de Generat. Animalium Exercit.* 23. *de Ovis gemellificis.* [l] *Hieron. Fabr. ab Aquapend. de format. Ovi & pulli p.* 10.

would

would have us beleive) which hens lay at laſt, after they have excluded a hundred before; or the laſt they lay, after they have made an end of laying for that year; which whether true, or no, depends upon the credit of the *Author*: But that ſuch *Eggs* as theſe (as *Ariſtotle* ſays) muſt be imperfect and barren, is certain enough; the *Yolk* in an *Egg* being equally neceſſary for the production and maintenance of a *chick* as the *white*, *& vice verſa*[m]: for which reaſon too, the Eggs mentioned by *Ariſtotle*, that were all *Yolk* (which the *Augurs* look't upon as very wonderfull) muſt alſo be number'd amongſt the *imperfect Eggs*[n].

16. As to the frequency of *Hen's* laying their *Eggs*, Dr *Harvey* tells us that ſome there be in *England* that will lay an *Egg* every day, yet that theſe are not the moſt *fruitfull*; which for the moſt part lay an *Egg* for two days together (in the morning of the firſt day, and toward evening the ſecond) and reſt the third[o]. But as I was inform'd by the ingenious *Tho. Broughton* of *Broughton* Eſq; there was a Hen then belonging to *Ann Biddulph* of *Edgiall*, when I was travelling this *County*, that would ordinarily lay 3 Eggs in a natural day, or 24 hours; and that the ſame thing in a manner had been found in *Ducks*, at Mr. *Noble's* of *Charley*, where eight *Duckes* being ſhut up all night; ſometimes layd 9, ſometimes 10, and once no leſs than 12 Eggs in a night; which was look't on by the *good-houſewives* as very extraordinary: and yet little leſs than this we find was obſerv'd as long agoe as *Ariſtotle*, who not only tells that the *Hadrianic hens* lay'd every day, but that there were ſome *tame-Hens* lay'd twice *per diem*; but then that the former ordinarily broke their Eggs, and ſo deſtroy'd their young; and the latter themſelves, by their over much fruitfullneſs[p]; which whether either of ours have been lyable too, I neither enquired, nor heard.

17. The time of *hatching* their Eggs, by ſome ſort of fowle, has alſo been noted here in ſome places, to be very extraordinary: Thus the worthy Mr. *Chetwynd* in his park at *Ingeſtre* obſerved young *Ravens* to goe to bough on *Newyears day*, which therefore muſt be hatch't in the winter near *Chriſtmaſs*; as ſome alſo were in *Aſhmers Park* near *Wolverhampton*, An. 1665, by a *Raven* that conſtantly built there for many years. Thus as *Cardan* acquaints us, in the 16 year of the raign of *David* King of *Scots*, which was An. 1347. the ſheep in that *Country* brought forth no young; nor the *Crows* and *Daws* in the Summer, but all in the Winter, which he obſerves that year was a very *warm* one, and fit to promote fruit-

[m] *Gul. Harvei de Generat. Animalium Exercit.* 35. [n] *Ariſtot. de Hiſt. Animal. Lib.* 6. *cap.* 2. [o] *Gul. Harvei de Generat. Animal. Exercitat.* 12. [p] *Ariſtot. de Hiſt. Animalium Lib.* 6. *cap.* 1. *& Gul. Harvei de Generat. Animal. Exercit.* 12. [q] *Hieron. Cardan. de Varietate Rer. Lib.* 2. *cap.* 13.

fullneſs in oviparous *Animals*, as (he ſays) has been long ſince noted by the beſt *houſewives*, who if they would have *Hens* lay plentifully in Winter, always ſhut them up in a warm roome [q]. Which 'tis probable might be the occaſion that the *Ducks* at *Charley* laid ſo many *Eggs* more than uſual, being ſhut up all night in a *warm* houſe, which had they been left abroad perhaps they might not have done.

18. But before we take leave of the Inhabitants of the *air*, let us next conſider what *flying Inſects* there be, worthy our notice, which I put after *birds*, becauſe they fly ordinarily lower, contenting themſelves for the moſt part with the *aïr* moſt immediatly circumambient of the terraqueous globe: amongſt which, that which juſtly claims the firſt place, both for rarity & ſtrangeneſs, is the *Lampyris* or πυρίλαμπὶς; otherwiſe from its ſhining in the night νυκτίλαμπὶς; and becauſe the light ariſes from two *ſmall ſpecks* on the under ſide of the *taile*, near the end, κωτολαμπὶς or πυγολαμπὶς; in *Latin* Cicindela, from *cis* and *candeo*; in oppoſition to the κεφαλολάμπις, the *Cucujus* or *Indian Glow-fly* of *Mouſet*; and *Pyragonus* of *Ariſtotle*; in Engliſh the *flying Glow-worm*, or *Lanthorn-fly*, becauſe it can ſhew or cover its light at pleaſure, haveing as it were the command of a natural *dark Lanthorn*. Of which there have been ſeveral ſeen near *Bradwall* in this *County* by the learned and ingenious *Ralph Sneyd* Eſq; about the year 1678; but firſt noted to be in *England* from the teſtimony of an Eye-witneſs by Mr. *John Ray* [r]; ſince that met with again about *Midſummer* in the years 1680 and 1684 at *Northaw* in *Hertfordſhire* by the ingenious *Richard Waller* Eſq; fellow of the *Royal Society*, who has given us an accurate Cut, and I think the beſt account we have had of it yet [s].

19. For I find him to have determined two or three *controverſies* amongſt *Authors*, concerning this *Inſect*; as firſt that there are *femal flying-glow-worms* as well as *males*, which he aſſerts alſo to have been known to *Julius Scaliger*, but I doe not find it in my edition of his *Exercitations*, the expreſſion there being; *Primum ſcito, Cicindelam à me cum ſuo mari deprehenſam in coitu*, without the *Epithet*, *volantem* [t]; it ſuffices however that he himſelf catch't both *male* and *female* coupled, betwixt which he could perceive no difference but in the *Size* (the female being a little the larger) both having *wings* alike: whereas it was always ſuppoſed before by *Mouſet* [u], *Tho. Bartholin* [w], and *Mr. Ray* [x], that theſe winged

[q] *Hieron. Cardani de Varietate Rer. Lib. 2. cap. 13.* [r] *Mr. Ray's Obſervations Topograph. &c. p. 409. 410.* [s] *Philoſoph. Tranſact. Num. 167.* [t] *Jul. Cæſ. Scaligeri Exercitat. Lib. 15. Exercit. 191.* [u] *Th. Mouſet. de Inſectis cap. 15.* [w] *Tho. Bartholini de Luce Animalium Lib. 2. cap. 12.* [x] *J. Ray's Obſervat. Topograph. p. 409. 410.*

Glow-

Glow-worms were nothing elſe, but the *males* of the common creeping unwinged ones, we ſee ſo commonly ſhining in the *bottoms* of *hedges*. Nor does the teſtimony of *Fabius Columna*, brought by *Mr. Ray* (which I cannot find neither in my edition) viz. *that* Carolus Vintimiglia *of* Palermo *ſaw a flying* Glow-worm *couple with many unwinged ones, one by one, after the manner of* Silk-worms; hinder but there may be alſo *winged females*: for how often doe we ſee, different *ſpecies* of more perfect *animals* than theſe, couple together; and yet we doe not hence conclude, that one of theſe *Species* muſt therefore needs be the *female* to the other, and that they have none beſide.

20. He aſſerts too, that the *male* as well as *female*, he ſaw coupled, both ſhined alike, and that when the *tailes* of one of them was cut off, it continued to ſhine but a very little while (no longer he ſuppoſed than *life* remained in that part) but ſenſibly decayed till at laſt it went out: whereas Mr. *Ray* upon the credit of an *Eye-Witneſs* aſſerts, that the *males* doe but rarely, if at all *ſhine* with us[y]. And *Scaliger* brings in *Cardan* aſſerting (though I cannot find it in him) *Marem alatum hic quoque eſſe, ſed non lucere*, i. e. that the *winged Cicindela* does not ſhine[z]. And as for their ſhining after death *Fabius Columna* is expreſs, that the tailes of his *Cicindelæ* continued to ſhine after they were cut off, as long as they had any *moiſture* in them[a]; and Dr *Stubbs* is as poſitive, that the *fire-flyes* of *Jamaica* doe continue their *light* ſome days after they are *dead*[b]; Sr. *Tho. Brown* alſo grants that a *glow-worm* will give a faint *light* for near a days time after 'tis conceived to be *dead*: but then he anſwers *himſelf*, and the former *Authors* too, by ſuſpecting that this is by a miſtake in the computation of *death*, for that the parts of *Inſects* (as Mr. *Waller* alſo obſerves) doe live a long time after they are ſeparated, though they ſhew not any viſible evidences of life[c]; ſo that as long as the *luminous moiſture* in theſe *Inſects* ha's the leaſt motion given it from any *life* left in them (though inſenſible to us) we may afford them to exert their *ſhining quality*, but not after.

21. Amongſt the *winged Inſects* it is alſo worth notice, that at *Throwley*, the Seat of the right Honorable the *Counteſs* of *Ardglaſs*, I was ſhewn by the moſt ingenious *Charles Cotton* Eſq; the *forficula* or Ear-wigg of a milk *white* colour, which are ordinarily of a *Cheſnut*. And it is very conſiderable that another curious *Obſerver* of this *County*, opening a ſmall flye *de genere* κολεοπτερῶν *ſive vaginipen-*

[y] *Ibid* [z] *Jul. Cæſ. Scaligeri Exercitat. Lib.* 15. *Exercit.* 194. [a] *Fab. Columnæ, Aquatil. & Terreſtr. Obſervat. cap.* 17. [b] *Philoſoph. Tranſact. Numb.* 36. [c] *D. Thomæ Brown Pſeudodoxiæ Epidemicæ Lib.* 3. *cap.* 27.

nium, by the help of a *Microſcope*, ſaw two living *Inſects* come out from within it, both alive, exactly alike, and very nimble, which in this ſtate moſt reſembled *Cheeſe-mites* of any thing he knew; only they were ſomthing bigger and had longer *hornes*, but wanted *briſtles* and were of a reddiſh colour, which by a ſtrong reflection of light from their backs, and the variety of colours caused thereby, he could perceive they were of the *cruſty* or *ſheath-winged* kind, which yet had been obſerved before by the learned *Dr. Liſter*, tho' not publish't till in *June* 84 [d]. So that this obſervation ſeems as well to be this *Gentlemans*, as Dr. *Liſters*, who are altogether unknown to one another.

22. The ſame worthy perſon opening another *Inſect* next dore to flying (it being called a *flea*, as ſome would have it, *a verbo* to flye, *quia adeo celeriter ſaltat, ut volare videatur*) found in thoſe of them of a reddish colour, not only *Eggs* of an *ellypticall* form, but in one that he open'd (by the help of a *Microſcope*) a young flea compleatly formed in all its parts, of a *whitiſh* colour, wherein it ſeems they not only agree with the *Moores* in being *viviparous Animals*, but alſo in that they produce their young *white*, though they become *black* after, which too hang to the old ones for ſome time after they are excluded; whence 'tis ſo frequent to catch an old *flea* and a young at the ſame time. From which two inſtances, *Jacobæus* may be inſtructed, that the *Scorpion* is not the only inſect that brings forth its young *alive* and *perfect*, without laying *eggs* [e]; the *Flea* laying none: for who ever ſaw any *nits* of a *flea*, any where excluded, as thoſe of a *louſe* are, upon hair, cloth, &c?

23. There are another ſort of *inſects* too *degenere* ἀπτέρων, which in ſome ſence alſo may be allowed to *fly*, ſuch are all *Spiders* (except thoſe long-legged ones we call *Shepherds*, which never ſpin any *thred*) which in *October* cheifly, will turn up their *tailes* and project one or more *threds* with that violence, that they ſhall reach croſs *roomes*, over *rivers*, and be faſtened betwixt *trees*, in *plano Horizontis*, at ſeveral *fathoms* diſtance; and ſometimes will dart them into the *Air* to ſuch a *length*, that the *Spiders* leaping up after them, will be carryed into the *air*, and there *ſaile* at the end of theſe *threds* to a great height and diſtance: by which means it is that the *trees*, *hedges*, *ſtubble*, and the *air* it ſelf, is ſo fill'd with theſe *threds*, ſome ſingle and ſome complicated, as we frequently ſee they are at that time of year. The *diſcovery* whereof ſeems to have been made much about the ſame time both by Dr. *Liſter* and Dr. *Hulſe* as plainly appears in the *Philoſophical*

[d] *Philoſoph. Tranſact. Numb.* 160. [e] *Tho. Bartholini Act. Med. & Philoſoph. Hafn. vol.* 5.

Tranſactions[f]. Since which, the ſame thing has alſo been obſerved by divers others, particularly in this *County* by the ingenious Mr. *King*, Chaplain to Mr. *Chetwynd*, from whoſe notes I ſhall only add ſuch matter, as was not ſo fully obſerved by the aforementioned *Authors*.

24. As firſt, that in their projecting a *thred* croſs a roome *in plano Horizontis* (which they doe for their eaſier and more direct paſſage) they raiſe themſelves on their leggs as high as they can, ſetting them very ſtraight and ſtiff, and turning their hinder parts up higher than uſual, they will ſhoot out a thred to a great diſtance, which when faſtened where they would have it, with their fore leggs they will winde up the thred ſhorter till it is very ſtraight, as the *Funambuli* ſtrain their roaps, and then like them too, will get upon it, and run from one end to the other. And as to their *ſailing* at the ends of theſe *threds*, he further obſerved, not only that they *ſailed* much ſwifter, than any *wind* then ſtirring could carry them, but that at the ſame time they conſtantly *ſailed* all the ſame way, which was not directly with, but as he once noted at 8 points diſtance, as it were with a ſide-winde; which plainly ſhews that they doe not only *row*, but *ſteer* too, with the motion of their feet, according as directed by ſome ſecret inſtinct they have in them.

25. Having done both with the *Inſects* that really *flye*, and that doe ſo only in a larger ſence, I proceed next to ſuch as live in the *waters*; whereof my worthy friend *Francis Wolferſtan* Eſq; ſent me one, out of many, he found ſwiming about in filthy water, that ſtood a yard deep, in the bottom of a large hollow *Elme*; which I cannot find after long ſearch, but is wholy undeſcribed: the bodies of them being better than an inch long, and $\frac{1}{4}$ of an inch *diameter*; full, white, and round; and the outer Skin upon back and belly made up from head to taile of *protuberant* Ridges, thoſe under the *belly* at *a* not ſhooting right againſt thoſe on the *back* or *ſides*, but againſt the *furrows* between them, which counterchanging of the *ridges* make the the *indentures* on the ſides; the *head* ſtriated, with *antennæ* iſſuing from a flat roundiſh face; the body fill'd with ſo thin a white matter, that they are in a manner tranſparent, in ſo much that a ſort of *periſtaltick* motion may ſometimes be perceived in them; having 14 ſhort feet (7 on each ſide) much like thoſe of a Maggot two being placed in the ends of every other ſemicircle of the belly; & a joynted tapring taile four or five inches long as in *Tab.* 22. *Fig.* 3. which they can contract to an inch, and extend it again at pleaſure to its full length. Whence 'tis plain that it is a ſort of *Eruca*, but ſuch

[f] *Philoſoph. Tranſact. Numb.* 50. *and* 65.

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an one as I find not deſcribed, which perhaps may not unfitly be ſtiled *eruca glabra caudata aquatico-arborea*, but I tye not up the *Reader* from his better choiſe, of a more agreeable *name*, if hereafter from further knowledg of the *nature* of the *Animal*, he can impoſe a better on it.

26. Thus being come to the *waters*, and having done with the *Inſects*; nature directs me next to proceed to the *Fiſhes*, the moſt frequent Inhabitants of that *element*: which, here in this inland *Country*, being only *freſh*, ſuch as is contain'd in *Rivers*, *Lakes*, and *Pooles*, nothing muſt be expected concerning fiſh here, but ſuch only as are either ποτάμιοι uſually living in *Rivers*; λιμναῖοι commonly found in *Lakes*; or πελμαῖοι that are kept in *ponds* or *Stews*; or in one, more, or all of theſe. Of which kinds there are ſo many in this *County*, that ſome have fancyed no leſs than thirty ſorts in the River *Trent*, as if a corrupt name by contraction from *triginta*; but this I take but for the imagination of ſome fond *Etymologiſt*: however I think there may be as many here of all theſe kinds, as in any other ſuch inland *County*, where there can be none of the θαλαττοποτάμιοι, that for certain intervalls of time live both at *Sea*, and in *rivers*: and yet I could hear of but one amongſt them all, that I think undeſcribed, and that one of the *ſmooth* ſort, without *Scales*, and for its ſolitary way of living, of the ἀποξένικοι, there having not above four of them been catch't, that I could hear of, within memory, and theſe all ſingle without any company, no not ſo much as of their own kind.

27. Whereof this repreſented here in Sculpture *Tab.* 22. *Fig.* 4. was taken in the river *Tame* in the damm near *Faſely bridg*, by *Goodyer Holt* Free-Maſon, as he was repairing it *Aug.* 11. 1654. who preſented it to Colonell *Comberford* of *Comberford*, who cauſed it to be drawn to the life, and placed it in his *Hall*, where it ſtill hangs, and whence this draught was taken in a leſs proportion: its length in the picture being 20 inches long, from the fore finn on the back to the belly 4 inches, of a greeniſh-aſh-colour, powdered all over with ſmall round *yellowiſh* ſpots; the *Iris* of the *Eye* of a blewiſh colour; having two ſmall *Cirri* or *wattles* iſſuing out of the *noſe* near the *mouth*, and one larger one out of the *jaw*; and four *finns* near the *gills*, the two ſmaller placed foremoſt, and the larger hindmoſt; with a ſtraight line running from the upper part of the *gills* to the ſetting on of the *taile*; having alſo under the *belly*, a *fin* reaching from the *exit* of the *excrement*, almoſt to the *taile*, with another on the *back* ſomwhat longer, and a *fore-fin* preceding it, the *taile* roundiſh, not at all forked; in all which particulars it agrees pretty well

with

with the *Muſtella vulgaris* of *Rondelet*[z], but not in the broadneſs of the *head*; largneſs and roundneſs of the *finns* at the *gills*; nor ſmoothneſs of thoſe both on the back and belly; which in *Rondelet's Muſtella*, are prickly like thoſe of a *Perch*, and which is more than all, the *Muſtella* a *Sea*, and this a *freſh-water Fiſh*.

28. Nor yet muſt we call it the *Muſtella fluviatilis*, or *Lota* of *Rondelet*[a], which though found in *rivers* and *lakes*, having moſt of the things common with *ours*, that the *Muſtella vulgaris* has; yet remarkably differs, in that its *head* is not near ſo broad; being a *ſquammous* fiſh; having but one *barb* or *wattle* under the lower *jaw*, none in the upper; the *tail* ſharp; and as thick powdered with *black ſpots*, all over the body, as ours is with *yellow*. The moſt like it of any that I have met with in *Authors* is the *Muſtela fluviatilis* of the Lake of *Conſtance*, by *Geſner* call'd the *Gwell-fiſh*, which is of the ſmooth kind, and in the general ſhape of *body* and *head* anſwers ours well enough; only like the *Lota* it has no *wattles* comeing out of the *Noſe*; the two ſmaller fins at the gills being alſo *divided*, whereas ours are *round*; and as thick marked all over with *black ſpots* as ours is with *yellow*[b]. So that either this is not the ſame fiſh, or elſe ſo ill deſcribed by *Geſner*, that there was need enough of a new one. However we may allow it to be a *Muſtela fluviatilis*, though in *Staffordſhire* by ſome it is call'd a *Burbot* or *bird-bolt*, perhaps from that ſort of *Arrow* rounded at head, ſomewhat like this *fiſhes*; by others, from the oddneſs of the ſhape, and rarity of meeting them, the *Nonſuch*; there having never but four (that I could hear of) been found within memory; this at *Faſeley-bridg*; another at *Willeford* near *Fiſherwick*; a third near *Colton Mill*; and a fourth near *Alrewas*: which either were not at all, or never till now at leſt well deſcribed, and ſo will be found by any, that can give themſelves leaſure to conſult the ancient *Ichthyographers*.

29. But though I heard only of this ſingle fiſh that I think undeſcribed (for that there are a ſort of *Crevices* in the ſtream that paſſes by *Overend* and *Longdon*, that will not boile *red*, is only accidental, as was ſhewn before in *Oxfordſhire*[c]) yet I was informed of divers very unuſual *obſervations*, concerning *ſcaled*, as well as *ſmooth* fiſh, relating either to their *breeding*, *habitation*, *feeding*, or *magnitude*; perhaps worthy knowledg: ſuch as their breeding and living in *Coal-works*, whereof there is an indiſputable inſtance, in the drowned *Coal-pit-open-works* S. W. of *Wednesbury*, into which *Pike*, *Carp*, *Tench*, *Perch*, &c. being put for breed,

[z] *Gul. Rondeletii de Piſcibus marinis. Lib. 9. cap. 15.* [a] *Guli. Rondeletii Lib. de piſcibus lacuſtribus cap. 19.* [b] *Conr. Geſneri de Aquatilibus Lib. 4. cap. de Muſtela.* [c] *Nat. Hiſt. of Oxfordſh. Chap. 7. §. 31.*

they not only lived, but grew and thrived to as large a magnitude, as perhaps they would have done any where elſe, and were to the *palate* as gratefull: ſo that though the *canckerd waters* that are long ſtagnant in the hollows of the *old* works, will deſtroy fiſh, as was hinted in the end of the ſecond *Chapter* of this Book[1], yet it is not ſo in waters that fill up the *open-works*, which conſtantly enjoy the ventilations of the Air, and the ſweet influences of the *heavens* both night and day.

30. There are other fiſh too, both of the *ſcaled* and *ſhell'd* kinds, that will live and breed in places very uncommon to their *ſpecies*: thus *Gudgeons* and *Crevices* live well and breed in the *pooles* at *Bentley*, and thrive to a juſt magnitude, but then theſe ponds are always fedd with *Springs*. Others there are again, that though they will live in unſuitable places, yet will never *ſpawn* there; and ſuch were the *Carps* the right Honorable the Lord *Ferrers* took forth the poole at *Drineton*, whoſe *ſpawn* ſtill lyeing in their bodies and increaſing yearly, diſtended their bellys into ſuch various ill ſhapes, that they appear'd monſtrous, the ſpawn when boyled being of the colour and conſiſtence of *red wax*; and yet the fiſh as good meat as others of the kind. Other *waters* again are ſo very diſagreeable, that though fiſh may live in them, yet they will not thrive, but rather pine away, as Mr. *Chetwynd* found it in a parcell of *roaches* he put into a pond in his park at *Ingeſtre*, whence after ſome time being taken forth again, they were all grown ſlenderer than when firſt put in, and become almoſt of the ſhape of *herrings*.

31. But for *breeding*, and *living*, there is no fiſh ſo wonderfull amongſt all the *ſcaly* or *ſhelly* kinds, as there is one amongſt the *ſmooth* ones, *viz.* the common *Eele*; which is not only *viviparous*, as may be eaſily found in the *Month* of *May*, as has been obſerv'd by the ingenious *Walter Chetwynd* Eſq; by cutting open the red and ſwell'd fundaments of the *females*, whence the young *Eeles* will then iſſue forth: but will live, and ſometimes take journeys *in arido*, paſſing over land from *Lakes* and *Pooles* they doe not like, to others they like better: by this means many times *ſtocking* waters of themſelves, which were not ſo before. Thus 'tis ſaid the *waters* of the *Coal-pit-open-works* S. W. of *Wednesbury* were ſtockt with *Eeles*; and ſo I was told was the poole at *Beſcot* the ſeat of the ancient family of *Mountfort*; never any Eeles having been put into either of them, for breed, or otherwiſe. Inſomuch that ſome have imagined upon ſuch accounts as theſe (never ſo much as dreaming they could be *night walkers*) that *Eeles* are many times produced of a peculiar *dew* (no melt

[1] *Chap.* 2. §. 129.

or *ſpawn* being ever found in them) falling in *May* and *June* upon the blades of the graſs, whereof *turffs* being cut, and the graſſy ſides clapt together, and then laid on the warmeſt ſide of a well-promiſing poole, thence by the *Suns* heat in a few hours will ſpring a competent number of young *Eeles* by *Equivocal* generation. In which Experiment *Abrah. Myllius*[m], and *G. Marhofius*[n], ſeem ſo well ſatisfyed, that they give the proceſs of this affair, as practiſed by the *Dutch*, who uſe this Method with ſucceſs, to ſtock their *fiſh-ponds* with *Eels*.

32. Now though I dare not pronounce either that *Lakes* or *pooles*, are impoſſible to be ſtock't after this *Belgic* manner; yet I think it much more probable of the two, that it may be done the *travelling* way: for moſt certain it is that *Eeles* are ſuch *night-walkers*, as was ſuggeſted above, having been actually catch't in the very fact near *Bilſton*, creeping over the *Meddows* like ſo many *Snakes* from one ditch to another, by Mr. *Moſeley* of *Moſeley*, who ſeriouſly told me they not only did it for bettering their *ſtation*, but as he apprehended, alſo for catching of *Snails* in *April* and *May*, the beſt time of year for them. Which yet I could have hardly believed (though the *Gent.* gave me licence to quote him for it) but that I have ſince met with ſo many *Authorities* both ancient and modern, that ſeem to render the thing probable, if not almoſt certain. Inſomuch that *Seneca* amongſt the reſt, makes it a pleaſant wonder, that any body ſhould doubt it: *Quid eſt autem* (ſays he) *quare piſces in terram non tranſeant, cum nos maria tranſimus*[o]? Now there are indeed ſo very many *fiſhes* that will doe this, that *M. Aurel. Severinus* has writ a whole *Treatiſe* of them, which he ſtiles, de *Piſcibus in ſicco viventibus*, being a *Commentary* upon *Theophraſtus Ereſius*, on the ſame ſubject[p]: where the *Reader* amongſt the reſt will find the *Eele*, which as *Pliny* notes will live for *ſix days* out of the water[q]; well therefore may they bear travelling over a few *Meddows*, for a nights time or ſo.

33. That they will make them *holes* in the *banks* of *Rivers*, which the people in *Somerſetſhire* ordinarily diſcover by the *hoar froſts* not lying over them, as elſwhere, and ſo dig them out in heaps[r]; as they alſo doe the *foſſile fiſh* in *Lancaſhire*[s]; and the *Prides* in *Oxfordſhire*[t]; ſeems not reach our buſineſs: but that which fully anſwers, and amply confirms it, is that of *Albertus* as quoted by *Geſner*, who expreſſly ſays that *An.* 1125, it being a

[m] *Abrah. Mylii de origine Animalium Lib.* 10. [n] *D. G. Marhofii de Metallorum tranſmutatione p.* 38. 39. [o] *L. An. Senecæ Nat. Queſt. Lib.* 3. *cap.* 17. [p] *Impreſ. Neapoli.* 1655. [q] *C. Plinii* 2^di. *Hiſt. Nat. Lib.* 9. *cap.* 21. [r] *Philoſoph. Tranſact. Numb.* 129. [s] *Camden in Lancaſhire.* [t] *Nat. Hiſt. of Oxfordſhire Chap.* 7. §§. 27. 28.

very cold winter, a parcell of *Eeles* got out of the water into a *Meddow* upon the dry land, and there went into a *Hay-ſtack*, where they were found bedded *in arido*, to preſerve themſelves from *cold* [u]: now if for one convenience they can doe this, why not for another? ſuch as bettering their *habitation*; and for neceſſary *aliment*; both which equally tend to *ſelf-preſervation*, with their proviſion for themſelves, againſt the violence of a *froſt*. Thus as *Rondelet* acquaints us, the *Ozæna* or *polypus* is frequently found at land embracing the *Olive* with its long winding claws, and ſometimes the *Figg-trees* that grow near the *Sea*, and eating the *fruit* [w]: nay they have been known to leave the *Sea*, and to paſs over land, to robb the *Fiſh-mongers* ſtews of fiſh, whereof *Pliny* tells us a moſt remarkable ſtory [x]. The *Exocætus* will lye and bask it ſelf in the *Sun*, and ſleep a ſhoar, whence it has its name [y]. And *Ariſtotle* diſcovered that the *Cerean* and *Paphlagonian fiſhes*, wander'd up and down on the *dry ſands*, and ſo ran back to Sea again [z]. As *Geo. Pictorius* aſſerts certain fiſhes of *Cherati* a River of *India* alſo uſually doe [*]. All which, both *Eeles*, and thoſe other *fiſh*, perform (as *Rondelet* thinks) by the benefit of the narrowneſs of the *rima* of their *gills*; all *fiſhes* living a longer or ſhorter ſpace out of the water, according as their *gills* are more narrow or patulous: the *fiſhes* that have wide and open *gills* being too much oppreſt with the free amd ſudden appulſes of the *Air* [a], and ſo dying preſently.

34. There are very many *fiſhes* too that take a great latitude in the variety of their *feeding*, as well as *habitation*; which too amongſt ſome of them is very unuſual and ſurpriſing. Mr. *Fiſher* *Dilk An.* 1679 laying a *Dace-bait* for a *Pike* near *Salters bridg* in the river *Tame*, catch't a large *Barbel* with it; and the ſame Mr. *Dilk* found a good *trout* in *Stafford Caſtle* pariſh choak't with a *Crevice*; which it ſeems they will not *Perch*, for Mr. *Morſe* Vicar of the *Collegiat* Church of *Stafford*, catch't ſeveral of theſe in *July* with *Crevices* in their bellies; the ſame Mr. *Morſe* once catch't a *Trout* in *Dunſmoore* river, with *Neuts*, *Efts*, or *Askers* in its belly; and the Worſhipfull *Walter Chetwynd* of *Ingeſtre* Eſq; in a pit near the high way in *Heywood* field, catch't large *Chubbs*, with *Toads* in their gorges. The ravenous *Pike* too, will not only ſwallow venomous *toads* and *froggs* without being harmed by them, but will devour things ſomtimes bigger and longer than his *gorge* will receive, ſwallowing one part, and letting the other remain

[u] *Conr. Geſneri de Aquatilibus Lib.* 4. *cap. de Anguilla.* [w] *Gul. Rondeletii de piſcibus marinis Lib.* 17. *cap.* 7. [x] *C. Plinii* 2^di *Nat. Hiſt. Lib.* 9. *cap.* 30. [y] *Gul. Rondeletii de piſcibus Marin. Lib.* 6. *cap.* 15. [z] *Ariſtot. in Lib. de mirabil. Auſcult.* [*] *Geo. Pictorius de fluminibus miraculoſis.* [a] *Gul. Rondeletii de Piſcibus. Lib.* 4. *cap.* 9.

in

in his *mouth* till the former is digeſted, and then taking in more, and ſo putting it over by degrees [b].

35. Nor doth this *freſh-water Wolf* only ſeize *Froggs* and *fiſh*, but upon *fowle*, and other *Animals* not of that Element. Thus in the moat at *Himley*, the *Jacks* are ſo bold with the young *Ducks*, that as the Reverend Mr *Paſton Rector* of the place ſeriouſly informd me, a whole brood of young *ducks* had been deſtroyed there by them in a *days* time; and this the larger *Jacks* will doe, even when theſe *ducks* are grown near as bigg as the old ones: whereof one was catch't (having taken in ſuch a *duck* the wrong way) that could not gorge it ſo farr, but that the *Ducks* head hung out of his *mouth*; in which poſture both *Jack* and *Duck* were hung up in the *Hall* of *Himley* houſe, to be admired, as long as the ſtench would permit. Which very well agrees with what *Geſner* affirms (though it come not quite up to it) that a *Poliſh* Gentleman of *Cracow* did faithfull aſſure Him, that He had ſeen two young *Geeſe* at one time in the belly of a *Jack*. Nay of ſo bold and greedy a devouring diſpoſition is this *Tyrant* of the *Rivers*, when He is in the height of his hunger, that as Mr *Walton* acquaints us, there have been inſtances of it, that a large *Pike* has bit at, and devoured a *dogg*, that ha's been ſwimming in the water [d].

36. Neither yet need we wonder much at this, if we conſider what *Geſner* further adds concerning the exceſſive *boldneſs* of this *fiſh*, who tells us of a Man going to water his *Mule* in the River *Rhodanus*, that had one faſtned ſo boldly on the lips of the *Mule*, where He hung ſo cloſe, that the *Mule* could not otherwiſe but draw Him out of the water, by which means his *Maſter* got the *Pike* [e]. To which the ſame *Geſner* yet further ſubjoynes, that a maid in *Poland* had her foot bit by a *Jack* as ſhe was waſhing cloaths in a fiſh-pond [f]. And Mr *Walton*, tells us he heard, that the ſame once happend to a woman in a pond near *Killingworth* in *Warwickſhire* [g]. Which though wonderfull *Examples* of the ravenous diſpoſition of this *Animal*, yet 'tis plain that many times they doe not ſo much as kill the prey they ſwallow, with their teeth by the way; whereof I met with two ſignal inſtances that fell out lately in this *County*.

37. One at the *Black-Lake* near *Aqualat*, where Mr. *Skrymſher* having catch't a *Jack*, that his Coſin *Skrymſher* of *Norbury*, who was preſent at the *fiſhing*, ſuſpected might have a *Carp* in his belly, upon opening his mouth found he had gotten one ſo

[b] *Iſ. Walton's compleat Angler. chap.* 8. [c] *Conr. Geſneri de Aquatilib. Lib.* 4. *cap. de Lucio.* [d] *Iſ. Walton's compleat Angler. Chap.* 8. [e] *Conr. Geſneri de Aquatilib. Lib.* 4. *cap. de Lucio.* [f] *Ibid.* [g] *Iſ. Walton's compleat Angler. Chap.* 8.

large, and ſo very lately, that they could viſibly perceive the *tail* of it ſtirr, which Mr *Skrymſher* of *Aqualat* by ſtroaking him on the belly, quickly made Him diſgorge, there remaining ſo much *life* in him (the *digeſtion* having only a little touch't his *Eyes*) that being put into the *water*, after ſome time, it ſwam away leiſurably as if not at all diſturbed. And the other at *Rugeley*, where Mr *Chetwynd* of *Ingeſtre* being fiſhing with his Coſin *Chetwynd* of the ſame town, amongſt many other *fiſh* they catch't a *Jack* with ſomewhat a bigg belly, which being open'd, they found divers *fiſhes* had been ſwallowed by it, and amongſt the reſt a *Roach* ſo intire (the end of its *noſe* being only a little touch't with the *concoction*) that being put into a *Ciſtern*, it ſhewed quickly ſo much life, that after a while being put into the *River* it ſwamm briskly away.

38. Laſtly, as for the unuſual *magnitude* of *fiſhes*, thoſe which have exceeded moſt of any I heard of; are, 1. a large ſort of *Gudgeons* in the *black-brook*; whereof ſome have been taken in the Lordſhip of *Hynts*, belonging to the courteous Mr. *Matthew Floyer*, from the tip of the noſe to the fork of the tail 7 inches long, and 4 inches about. 2ly. *Carps*; of which kind there are vaſt ones in the *Meer* at *Aqualat*, but two there were taken (as I was punctually informed by the learned and ingenious *Proprietor* of the place *Edwyn Skrymſher* Eſq; a moſt generous promoter of this *Hiſtory*, whoſe pleaſant ſeat is here repreſented *Tab.* 20.) more remarkably great: One, a *Melter* 33 inches long and 19½ inches about, weighing 15 pounds. And the other a *Spawner*, which though not above two foot 6 inches long or thereabout, yet was 20½ inches round, weighing 14 pounds, and ſold for 14 ſhillings; the *Scales* of each being near as broad as one of our mill'd *half Crownes*. And 3ly. *Jacks*; whereof there hangs a picture of one in *Cumberford* hall taken in the River *Tame*, *Dec.* 16, 1673, an *Ell* and 2 inches long when firſt taken, but as drawn there in the picture but a *yard* and ¼ and ⅛ an inche from the tip of the noſe, to the fork of the tail; and there are of them in the moat at *Himley* a yard and half long. And yet even theſe would be found but of an inconſiderable magnitude, if compared with the *Pikes* of the *Lake* of *Geneva*, where they ſometimes catch them of 80 pounds weight, reckoning too (according to the account of *Geneva*) 18 ounces to the pound[h].

39. Which is all I met worthy notice relating to *fiſhes*; and yet I have not done neither with the *inhabitants* of the *waters*; for though I come next to treat of the *Quadrupeda* πολυδάκτυλα, *digi-*

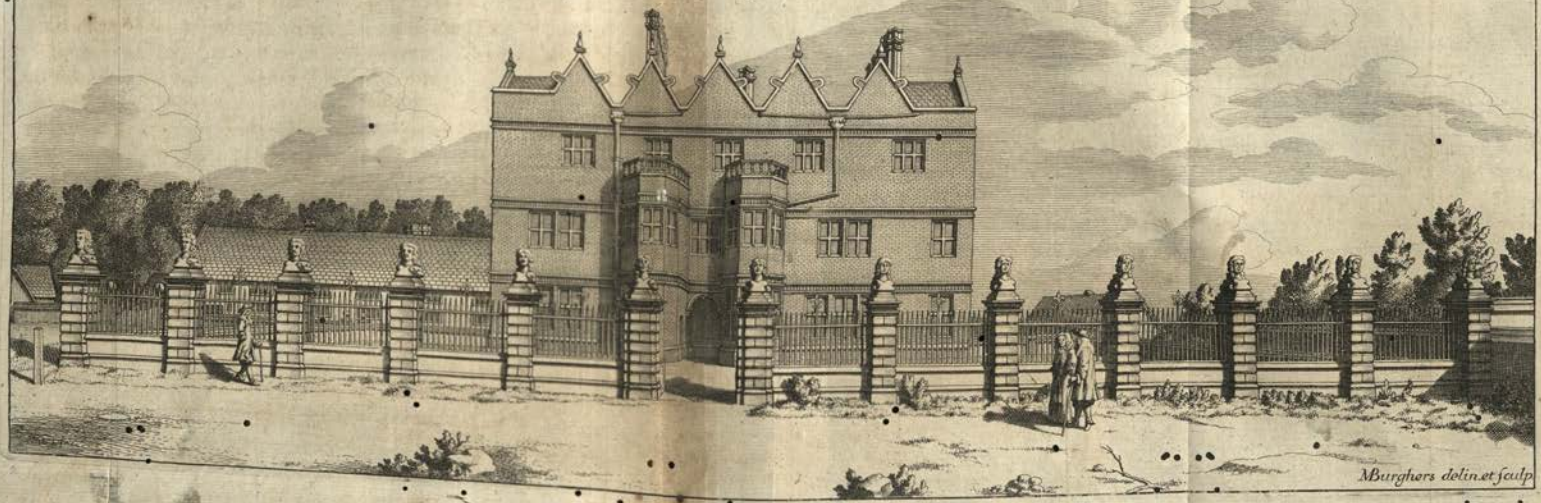
[h] *Philoſoph. Tranſact. Numb.* 86.

tated

TAB.XX.

ad pag: 246.

To the Worpp. the
Learned and ingenious Gent.
EDWIN SKRYMSHER of
AQUALATE Esq.
This Table being a N.W. West
Prospect of AQUALATE House,
as a thankfull acknowledgment
of his Singular favours
is gratefully dedicated
by R. P. L. D.



Burghers delin. et sculp.

tated Quadrupeds; there being ſome of them *oviparous*, as almoſt all fiſhes are; and ſometimes at leaſt frequenting the ſame *Element*: I muſt in all reaſon firſt dipatch what I have remarkable concerning ſuch *Animals*, before I proceed to others that are purely *terreſtrial*. Amongſt which the *Toad* muſt be reckon'd as one; which though living both at *land*, and in the *water*, is ſometimes moſt wonderfully excluded from *both*, having been frequently found cloſe impriſon'd within the middle of ſolid blocks of *Stone*, without any perceivable *rift* or *cleft*, either whereby they were firſt admitted, or were ſupplyed with *Air*, during their abode there; a thing ſo frequent in this *County*, that I met with inſtances of it in divers places: and firſt at *Horton*, at the houſe of Mr. *Edg*, where in his barn wall, he ſhewed me a hollow Stone which being clove by the *Maſon* had a *live Toad* included in it; this he told me he ſaw himſelf, and that it dyed quickly, after it was taken forth.

40. The ſame happen'd again at *Knyperſley* near by, at the right Worſhipfull Sr. *John Bowyers* Baronet; at *Ingeſtre* at Mr. *Chetwynds*; and as I was told by Mr. *Launder*, at the Village of *Broctton*; the learned Dr. *Pierce* Phyſician at *Bath*, in a Letter to the ingenious Mr. *William Muſgrave* Secretary of the *Philoſophical Society* of *Oxford*, ſent us lately an account alſo of ſuch a *Toad* found in the Center of a hard *lime-ſtone*, laid as a ſtep-ſtone for paſſengers in the middle of a *Cartway* between two *rills* that ran of each ſide it; where a *croaking* noiſe being a long time heard, and the parts near ſearch't and nothing found, this ſtone at length was reſolved ſhould be broke, where in a cavity near the middle, a large *Toad* was found as *bigg* as a mans fiſt, which hop't about as briskly, as if it had been bread in a larger room; but for how long time he does not ſay[1]. But the *Toad* that was found in the moſt aſtoniſhing manner, certainly that ever was heard of, was that at *Statfold*, if the tradition they have of it there be true, where as the ſtory goes, the *Steeple* being to be taken down to prevent falling, the top-ſtone of the *Spire* or *Pinnacle* being taken off, was thrown down whole into the *Church-yard*, but breaking in the fall, there appear'd a *living Toad* in the Center of it, which (as moſt of the reſt are ſaid to doe) dyed quickly after it was expoſed to the Air.

41. Nor has this ſort of *impriſonment* of *Toads* in ſolid Stones, been only obſerved of late years, but in many ages backward; for *Gulielmus Neubrigenſis* relates, that a *Todd* was found thus included in a ſtone in his time, which was near 500 years

[1] *Letter Book of the* Philoſoph. Society *of* Oxon. *Mar.* 17. 168⅝. *and Apr.* 14. 1685.

agoe; and the publiſher of that *Edition* of him, printed at *Heidelberg* An. 1587. upon that place notes, that in the *Coal-mines* near *Leigh*, there are oftentimes found hard round ſmooth *flints*, with *living toads* in them, without any viſible cleft or paſſage for *Air*[k]. In the ſame manner *Johnſton* aſſures us, they are found at *Tholouſe* in a reddiſh ſort of *freeſtone*; alſo that a *Stone-cutter* of *Antwerp* met with one thus incloſed in hard *marble*; and *Agricola* writes (as quoted by *Johnſton*) that they are ſometimes found in the *Quarries* of *Mill-ſtone*[l]. *Certum eſt* (ſays *Fortunius Licetus*) *inter viva ſaxa contineri quandoque bufones*[m]; and of later days, my Lord *Verulam* pronounces it for certain, that *Toads* have been found in the middle of *Freeſtone*[n]. And not only within *Stones*, but

42. They are alſo ſometimes met with in this *County* as cloſely included in the bodies of *firm trees*: thus out of a great *Oak* that grew at *Lapley* of about 6 Tunns of timber, brought to *Elmhurſt*, by the right Worſhipfull Sr. *Theophilus Biddulph* Baronet for the new bulding the houſe, repreſented above in *Tab.* 2. there was a great *Toad* ſawn forth of the middle of the tree, in a place which when growing, was 12 or 14 foot from the ground; the *tree* being ſound and intire in all parts quit round, ſaving juſt where the *Toad* lay, it was black and corrupted, and crumbled away like *Saw-duſt*. Alſo at *Bently* there was another ſawn out of a ſolid tree, in that part of it, that when growing, might be about a yard from the ground; the tree ſound underneath next the root, and in all other parts, only where the *toad* lay, there was a hollow about the bigneſs of the crown of ones hat, which (as thoſe incloſed in *Stone*) alſo preſently dyed, as ſoon as expoſed to the *Air*. Now how theſe *Animals* ſhould come at all to be thus included, in the middle of ſuch *intire* and *ſolid* ſubſtances? and when incloſed, how maintained either with *breath*, or *aliment*? and how long they may have been preſumed, to have continued there? ſeem *queſtions* indeed worthy the conſideration of the moſt profound *Philoſopher*; whome that I may honeſtly provoke to give a better, I ſhall here offer the *Reader* ſome account of my *owne*, which though a ſlender one enough, yet may ſerve his turne, till he can get a better, and in ſome meaſure to evince the probability of the thing.

43. To come then cloſe to the buſineſs, upon preſumption that the *matter* of *fact* is indiſputable; 'tis eaſy to apprehend how *Toads* creep into the clefts and hollows of *rocks* and *trees* (which

[k] *Gul. Neubrigenſis Rerum Angl. Lib.* 1. *cap.* 28. [l] *Joh. Johnſtoni Hiſt. Nat. de Quadruped. Lib.* 4. *cap.* 1. *Art.* 2. *punct.* 1. *in fine.* [m] *Fort. Liceti Litheoſpher. cap.* 54. [n] *Nat. Hiſt. Cent.* 6. *Experim.* 570.

they

they always doe in *August*, when they are in a declining condition) to preserve themselves i'th *winter*: where during their rest for about eight months, they grow somwhat bigger, and the clefts or holes of the *rocks* or *trees*, as much less; so that at the return of the *year* (like the *Fox* in the *Fable*) they cannot get out, where they came in, and so are forced to remain where they are, in that solitary condition, as long as they live; the clefts and holes of the *rocks* and *trees* in the mean time growing quite up, and inclosing them in an *intire* and *solid* case. And thus I suppose these *animals* may come to be inclosed in the *rocks* and *trees*, upon or near the surface of the earth. But how that *Toad* in the *tree* at *Lapley*, should come to be thus imprisoned 12 or 14 foot high? is a difficulty yet harder, and that requires yet nicer considerations.

44. For the *Solution* whereof, we must either suppose that the *Toad* was produced in a *hole* at that height when the *tree* was *young*, of an agreeable *dust*, brought thither by the *wind* and a sort of *rain* as well disposed for the same purpose; like the *worms* and *maggots* bred of *dust*, and the *rains* that accompany the *Tornado blasts*, and fall in the *Maggoti Savanna* in *Jamaica*, by equivocal generation, as was shewn in *Chap.* 1. §§. 48, 49. of this *book*: or else according to the opinion of *Cardan*, generated of the seed of a *Toad* blown from the top of some Mountain, or drawn up by the *Sun* into the *Clouds*, and so discharged thence in a shower, and lodg'd in the *hole* of this *tree* whilst young: whence fearing to leap in the *Summer*, and creeping down low in the *dust*, usually lodg'd in the *holes* of all *trees*, in the *Winter*, and there keeping its Station for a long Season; the wood of the *tree* in a little time might thus grow over it, so that the tree being trimm'd up, and a taller body given it, the *Toad* at length thus appear'd to be inclosed in the *body* of the *tree* at that height.

45. Nor is it at all improbable that the Spawne of *Toades*, or indeed that *Toades* themselves, should be thus drawn up by the *Suns* heat, since we see what vast quantities of water it supports in those wonderfull *exhalations* they call *Spouts* at Sea, in which there are such mighty weights of water, that they overwhelme the best *Shipps*, if any thing near them, and disturb the whole *Sea* for a good distance, with the violence of their fall: in these *Spouts* together with the water, the *fish* many times in the *Sea* thereabout are also lifted up, which sometimes being carryed by the *winds* over *land* before their fall, has often occasion'd the wonderfull raining of *fish*, as it did *Whitings*, at *Stansted* in the parish of *Wrotham* in the *County* of *Kent* Anno. 1666; and

* *Letter Book of the* Philosophical Society *of* Oxon. *Mar.* 27. 1685.

herrings in the South of *Scotland*, *Anno* 1684. as his moſt Sacred *Majeſty* King JAMES the *Second* moſt Judiciouſly determined the *Problem* there. Now moſt certainly the force that could elevate theſe, may very well be allowed to attract the *Spawne* of *Toads*, or large *Toads* themſelves, which being carryed by the *wind* (that bloweth where it liſteth) to any place whatever, may alſo be let fall as well in any the like indeterminat place, and ſo poſſibly upon the *bole* of a *tree* as well as any where elſe.

46. Thus having ſhewn the moſt probable means whereby theſe *Animals* are thus incloſed in *ſolid Stones* and *trees*, both near the ſurface of the *Earth*, and at ſome height above it; it remains that I proceed to the ſecond *difficulty*; how, when thus impriſoned in ſo narrow a *Cell*, they are ſupplyed with the neceſſaries of *Air* and *Aliment*. To which I anſwer, that theſe *Animals* require very little of either, to ſupport them: not of *Air*, as is plain from their long continuance under water without it, nor of other *Suſtenance* from ones living in a Glaſs above a Month without any at all, it being the property of *Animals* that have but a weak heat included in cold viſcous juices, and doe not perſpire, to retain the *Spirits* of *life* a long time without any foraigne maintenance; for where the *heat* is too weak to maſter the *tough juices*, there can be no rarefaction or ſeparations of parts, and conſequently no tranſpiration or conſumption. Thus the *Tortois*, *Porcupine* [p], and ſome ſorts of *birds* that are ἑξαμηνόβιοι, live at leaſt half a year without *meat*; and thus (as *de Laet* will have it) live a ſort of *Solenes* (which the *Venetians* call *Cape longe*, and the *Engliſh Pirot*) all their time, they being a kind of *Shell-fiſh* deep bedded in a *ſolid rock*, in which are no clefts, holes, or moiſture to be found, but what is in the *fiſh* it ſelf; nor can they have any *nouriſhment* conveyed to them, except the *dews* of *Heaven*, which as *de Laet* thinks, the *rocks* imbibe, and tranſmit to the *fiſh* [q].

47. Which if all they have, and that ſufficient to ſupport them; our *Toads* included in *Stones* and *trees*, may pretend to the ſame, and perhaps ſomewhat more; for I doe not conceive them wholy deprived (tho' ſo cloſe priſoners) either of *Air* or *Aliment*: for the *cavities* they are lodg'd in, are generally ſomewhat bigger than *themſelves*, and they have the *Salts* of the *Stones*, and *juices* of the *trees*, to ſuck and lick, which together with the tranſcolation of ſuch *fine dews*, may very well ſupport an *Animal* of ſo ſlender a dyet; that no way ſpends it ſelf in *perſpiration*; and is

† *D. Abercromby's diſcourſe of Wit.* §. 5. [p] *Journal des Scavans Jul.* 24. 1681.
[q] *Joh. de Laet de Gemmis & Lapidibus Lib.* 2. *cap.* 7.

absolutely shut up from all other *expence* of its *juices* or *Spirits*, in *swimming*, *travelling*, *generation*, or otherwise. And by the same means no question lived the two *Animals* somewhat like *Evets* or *Newts*, but as big as *Ratts*; being a span long, of a very yellow colour, whereof we had an account from the same Dr. *Pierce* of *Bath* above mention'd, which were found embracing one another head to head, and belly to belly, in the hollow of a *solid Free-stone*, somewhat bigger than *themselves*, dugg up 2 foot and ½, or 3 foot under ground, which being enlarged crawled about, and were kept alive some time[1]. But of these no more, because I am unwilling to prevent the ingenious Mr. *Beaumont*, now most laudably designing the *Natural History* of *Somersetshire*, wherein I heartily wish him all imaginable encouragement.

48, Also by this means these *Animals* seem not only to be precluded from all *injuries* they might otherwise receive from foraigne *Enemies*, and from the *changes* of the *seasons* of the *year*, they remaining always as it were in an equal state, without any *change* either of *Air* or *dyet*, things no doubt on't that conduce not a little, to the *prolongation* of *life*; but to what period of time, in *Animals* thus imprison'd, and secluded from *observation*, is not easy to conceive, much less to determine; though I believe one may venture in general to pronounce it a pretty *long* one: for upon supposition that the *Toad* in the tree at *Lapley* was dropt on the *bole* of it when young, or otherwise generated in some *hole* or *cleft* it might then have; it must necessarily have continued there a long time, the *tree* when fell'd carrying a full yard square where the *Toad* lay, which it could not arrive to, in a few years. And if the story of the *Toad* in the *top Stone* of the *Steeple* at *Statfold*, may be allowed to be true, we must then perhaps afford them some *hundreds* of *years*, to have continued in this *State* (the *Steeple* being grown so old, that they took it down to prevent falling) which too in all probability would have been prolong'd to a much greater *period*, had it never been found and exposed to the *Air*.

49. After the *oviparous digitated quadrupeds* that sometimes frequent the *waters*; I come next to consider the others, that are also *oviparous* and *digitated*, but wholy *terrestrial*; whereof I had one sent me by my worthy friend *Francis Wolferstan* Esq; plowed up in his grounds at *Statfold*, where too they are sometimes seen in *frosty* weather on the Sunny-side of old hedges, in the bot-

[1] *Letter Book of the* Philosoph. Society *of* Oxford. *Mar.* 17. 168⅝ *and Apr.* 11. 1685.

toms whereof they have their *holes*, which they recover ſo nimbly, that 'tis a hard matter to ſurprize them. In the length, and general make of their body, they moſt of any thing reſemble a *Newt*: but in ſome things are ſo different from that and all others of the *Lizard*-kind that I can find in *Authors*, that either it muſt be wholy or but imperfectly deſcribed, though we allow it a place under the *Genus* of *Lizards*. For beſide that it differs in colour from all the *Newts* or *Aſcars* that ever I ſaw, being of a dirty yellow on the *back* and *taile*, and blue under the *throat*, and moſt part of the *belly*; it has a *round* tail, skipping like a *Squirrel* and ſtrongly raiſing up its head when it runns: whereas the tailes of *Newts*, *Evets*, or *Aſcars*, are always *flat*, lying ſtill when diſcovered or crawling but little.

50. And whereas the *back* of the *Evet* or *Newt* is covered with a tough *membran*, theſe both *back* and *tail* are *Scaled* all over; the *Scales*, eſpecially thoſe on the *tail*, lyeing in oblong ſquares like the *tiles* or *ſhingles* of a houſe, only they have wider *joynts* at ſome certain *diſtances* than elſe where, as in *Tab.* 22. *Fig.* 5. in which it pretty well agrees with the green Lizard or *Liguro* of *Bononia*[s], only in the colour, and magnitude, it is quite different; ſo that the fitteſt deſcription I can think of for it, is, the *Lacerta terreſtris lutea ſquammoſa Anglica*, which whether agreeable to the land *Aſcar* (as Dr. *Liſter* thinks it may) or not agreeable, is indifferent to me, even *that* being only named, and not deſcribed, in any *Author* that I can find.

51. Amongſt the *viviparous digitated Quadrupeds* though I met none undeſcribed, yet ſome there were attended with ſo very unuſual *accidents*, that they muſt not be paſt by; and ſuch was the *Rabbit* taken in *Salt* warren, that had two teeth growing out of the lower *jaw*, that turned round over the *noſe* above the upper *jaw*, with that length and compaſs, that they almoſt touch't the *forehead* in the return, as in *Tab.* 22. *Fig.* 6. which ſurely muſt ſo incommode the *animal* in feeding, that I ſee not which way it could performe to it ſelf, that moſt neceſſary good office, unleſs by licking in its food on each ſide the mouth: but this inconvenience it ſeems was not ſo great, as what it met with at laſt upon account of theſe *teeth*, by which it was taken, and kill'd, being hang'd by them in a hedge; ſo that though they did not occaſion it's *death* by ſtarveing, it did it as effectually another way. And yet for a *Rabbit* to have ſuch *teeth* as theſe, is not ſo very extraordinary, but there have been others ſeen like it at other places, particularly as I was told by the Lady *Offley*, at S^t.

[s] *Joh. Jenſtoni Nat. Hiſt. de Quadruped. Tab.* 76.

John

John Crew's at *Utkinton* in *Cheſhire*, tho' not thus ſuffering *death* by the misfortune of them.

52. Another as uncommon an *Accident*, as perhaps ever befell any of the *viviparous digitated Quadrupeds*, or that one ſhall hear of in an *Age*; was found in a *Hare*, about the year of our *Lord* 1667 by S^r. *Willoughby Aſton*, *John* and *Tho. Offley* Eſq's; Mr. *Clayton* of *Onneley* and divers others, who goeing a *courſing* for an *Eaſter* Hare, kill'd one on *Birch-hill* 'twixt *Madeley* Manor, and *Onneley*, which being opened and her *entralls* taken out was hung upon a beating pole at one of their *Servants* backs; where as ſhe was carryed, S^r. *Willoughby Aſton* eſpyed a protuberance in her flank, which he haveing a curioſity to open, there was found in it a *young Hare*, with the furr on, that could ſee, which was taken out by Mr. *Thō. Offleys* man, and kept a live nine days after with milk; the moſt remarkable circumſtance being this, that it was out of due place, and no rupture that could be perceived offerd, either in the killing, or opening the *old Hare*: it is remembrd alſo that it had a *ductus* to its *navel*, but where it terminated in the *old Hare*, they were too incurious to obſerve.

53. Which how it ſhould come to paſs is hard to conceive, otherwiſe than either by the ſtoppage of the *Cornua Uteri* by the corruption of the *Fætus* of ſome former impregnation; or a too long ſtay of the *Egg* in the *Ovarium*, where it acquired a growth too great before it fell, to paſs the *Tube* into the *Womb*: in both which caſes the *Embryo* muſt neceſſarily continue and be formed in the *Teſticle*, whence by the extenſion in its growth, it muſt alſo as neceſſarily force its way through it, into ſome part of the *Abdomen*. As it was in the caſe of a *hound Bitch* of the right Honorable *James* Earl of *Abbington*, which being with whelp, by an unfortunate blow, had her *Fætus* dyed in her, whereof ſhe diſcharged a great part in putrid matter and fleſh by the *Pudendum*, and was afterward able to run again in the *pack*: but the bones, firmer muſcles, and thicker Skins of the *Embryos* yet remaining within her, ſo ſtufft up the horns of her *Womb*, that the *Eggs* upon a ſecond impregnation, finding no paſſage there, were forced back into divers parts of the *Abdomen*, whereby (her belly being diſtended into very ill ſhapes) ſhe after ſome time dyed. Being dead, his *Lordſhip* being very curious, and knowing her to have been twice with *Puppy* and never to have *whelp't*, he ſent her over to his skillfull *Chirurgeon* Mr. *Pointer* of *Oxford*, who opening her carefullly in the preſence of divers *Phyſicians*, found the *Cornua Uteri* ſo ſtufft as above mention'd, and ſeveral *whelps* in

divers parts of the *Abdomen*: whereof the *Reader* may ſee a more full account in the *Philoſophical Tranſactions*[t].

54. As he alſo may of the other caſe where the *Egg* ſtayed ſo long in the *Ovarium*, and grew there ſo great before it fell, that it could not paſs the *Fallopian Tube*: this happen'd in a human *Fœtus* of Madam *de St. Mere* a *French* Lady, which ſtaying in this manner, as was ſuppoſed, ſo long in the *Teſticle* (for in this caſe neither the *Womb* or *Tube* were ſtop't with the remains of any dead *Embryo*) at length extended it ſelf to that greatneſs in its growth, that it broke the *Ovarium* long-ways and in the middle of the ſide (as was found by Monſieur *de S. Maurice* M. D. her *Phyſician* who was preſent at the opening her body after ſhe was dead) and forced its way into the *right flank*, whence it was taken forth ſo perfectly formed, that they could manifeſtly diſcover in it the *Sex* of a *Boy*[u]. And this laſt was moſt likely the the caſe of the *Hare*, though it be very ſtrange it ſhould be taken forth alive, after ſuch a *courſe*, and *death* of its *damm*; or that it had not kill'd her long before, which certainly it muſt have done in a little time, it being very unlikely that the *damm* could have any way *litter'd* it, ſo as either to have preſerved her young one, or ſelf.

55. Which is all I met worthy notice concerning *viviparous digitated Quadrupeds*, but two *doggs* (which are alſo reckon'd amongſt theſe) indeed ſo curious and ſtrange, that I thought not amiſs even to repreſent them in *Sculpture*. *Tab.* 22. *Fig.* 7. and 8. the former whereof, begotten I ſuppoſe between a *Guinea Dog* and an *Engliſh* Spaniel, was *Engliſh* in his foreparts, and *Guinea* in his hinder, ſo that he always naturally appear'd as if newly *trimm'd*, with ſingle *tuffts* left on his *back* and the end of his *tail*, as is uſually done to *trimmed* Spaniels. This former belong'd to Mr. *Chetwynd* of *Ingeſtre* and was call'd *Guiney*, not I think ſo much for the ſake of the *Countrey* whence he had a moyety of himſelf, as for the *price* he coſt his *Maſter*; and the latter to Mr *Pargiter* of *Maveſyn Ridware*, which deſcended I ſuppoſe from the ſame *ſtock* with the former, though not ſo equally divided betwixt the two *Countries*, this being curiouſly ſpotted, and for the moſt part naked, his head only adorned with an *Engliſh Peruque*, and his *tail* with a ſingle tuft at the end.

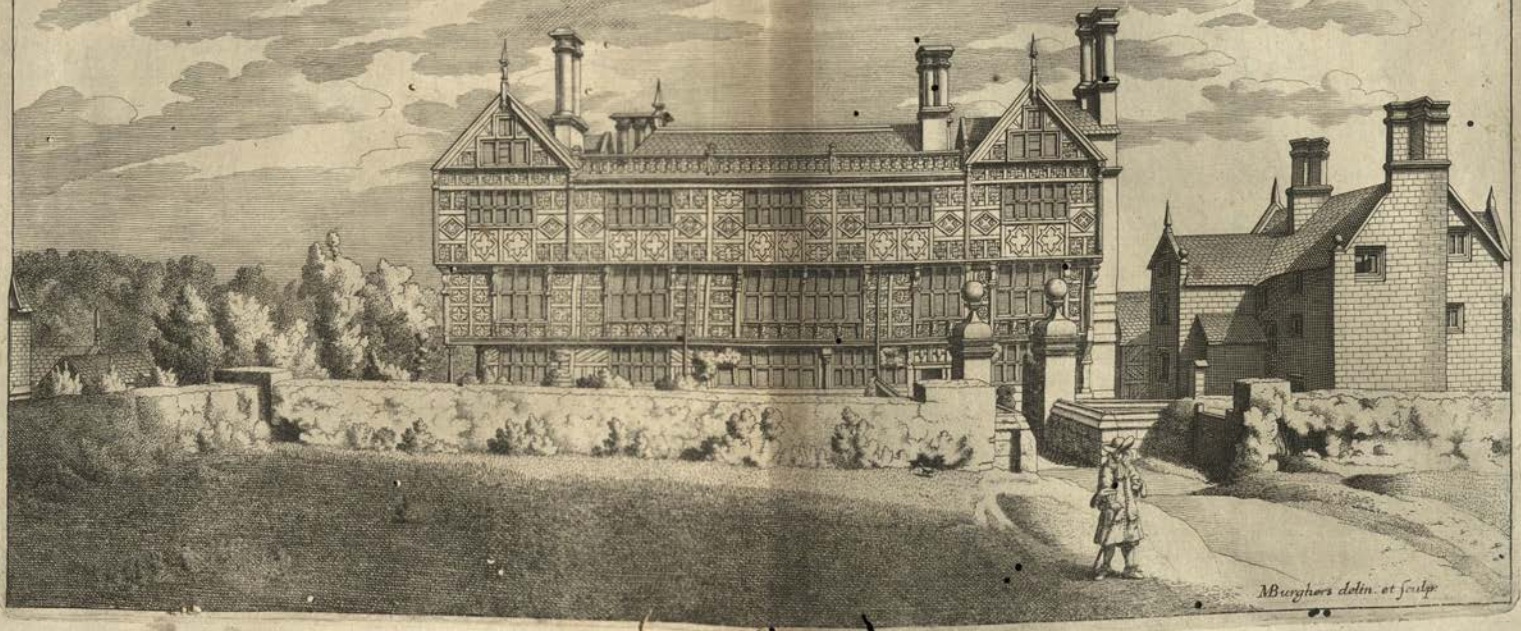
56. Next the *viviparous digitated*, the *Quadrupeda* Ἄχηλα the *cloven-footed Quadrupeds*, fall under conſideration; whereof ſome, neither *chew the Cudd*, nor are *horned*; others, doe *chew the Cudd*, but have no *horns*; and others again, *both*. Of the firſt

[t] *Philoſoph. Tranſact. Numb.* 147. [u] *Philoſoph. Tranſact. Numb.* 150.

kind

ad pag: 255.

To the Worp.ll the
learned and ingenious Gent.
THOMAS BROUGHTON Esq.
Son and Heir of the right Worp.ll
Sr. BRYAN BROUGHTON
of BROUGHTON Bar.t
This 21. Table
Shewing the beautifull Front
of BROUGHTON House
with all sincerest gratitude
is humbly presented
by R. S. A. D.



kind of theſe, are reckon'd only *Swine*; and the *Hippopotamus*, no where found in theſe parts of the *world*; but of the former they have a *race* in ſome places in this *County*, much larger than ordinary: of which I ſaw, and meaſured a *Bore*, at the right Worſhipfull S^r. *Brian Broughton's* of *Broughton* Baronet (whoſe beautifull Seat is here annext *Tab.* 21.) 4 foot and one inch, i. e. 'twixt 12 and 13 *hands* high, the *briſtles* preſt down on his back; from the tip of the *noſe* to the ſetting on of the *tail*, 7 foot 2 inches; and the *tail* it ſelf 15 inches long: a *ſtature* not much ſhort, if not fully equalling the great Hogg of *upper-Tadmerton* in the *County* of *Oxon*[w]. They have of theſe large ſized Hoggs alſo about *Statfold* in this *County*, one of the *teeth* whereof (if one may gueſs by the bigneſs) was ſent me by Mr. *Wolferſtan*, which has another little one growing out of it, much like the ſmaller *Ears* of *Triticum multiplex* out of the great one, as in *Tab.* 22. *Fig.* 9. And Mr. *Inge* of *Thorp-Conſtantine* ſent me at the ſame time, an irregular *bone* taken out of the *Omentum* or *Caul* of a female Swine of one of his *Tenants* which they call a *Gilt*, which grew juſt againſt the place where ſhe had been *ſpay'd*, the form whereof is exactly repreſented *Tab.* 22. *Fig.* 10. which being *ſingle Enormities* of *Nature*, are hardly to be accounted for.

57. Of *Animals* that *chew the Cudd*, but have no *horns*, there are none in this *County*, this *Species* being ſo narrow, that only *Dromedaries*, *Camels*, and *Camelopardi*, are found of it; unleſs we ſhould reckon the *Ews* and *Weathers*, that indeed *Chew the Cudd*, & have no *horns*, under this *Species*: but the *Ews* of ſome places being *horned* like the *Ramms*, and ſeeing the *Weathers* all would be ſo, if not prevented in ſome by *cutting*, they are reaſonably enough all counted *cornigerous*. Where by the way perhaps it may not be altogether unworthy the enquiry, or the *Readers* knowledge; how it comes to paſs, that there is ſo great a connexion between the *Teſticles* and the *horns* of ſome *Quadrupeds*, *ut ſe mutuo ponant & tollant*; as it is in ſome *Sheep*, and all red and fallow *deer*, whoſe *doucets* if taken away, whilſt *calves* or *fawns*, before they come to be *Knibbers* or *Prickets*, i. e. before they have *hornes*, will never have any at all: whereas in *Oxen* it is quite contrary, whoſe *hornes* are much larger than they would have been, had they remained *Bulls*, or never been *caſtrated*. A *Queſtion* ſcarce ſtarted before, that ever I could hear of, much leſs conſider'd or ſtated, amongſt the *Philoſophers*, or *Georgical* writers.

58. Which that I may doe in ſome tolerable manner, rather to incite

[w] *Nat. Hiſt. of Oxfordſh. Chap.* 7. §. 37.

incite *others* to doe it better, than out of any hopes I have to determine the thing: let it be noted, first that all *Animals* (as well as *plants*) doe always throw off some περιττώματα or *superfluous juices*, and that out of these [in *Animals*] spring, *horns*, *nails*, *hoofs*, *hair*, *wool*, *scales*, *feathers*, &c. as *Leaves*, *moss*, *fungus*'s, &c. doe out of *Trees*. Secondly, that *horns*, *hair*, *wooll*, &c. (though in respect of the body on which they grow, they may in some sense be said to be *excrementitious*) yet having once acquired *vegetation*, and growing out of the *Skin* as out of their proper earth, not by apposition, but extending themselves *organically*, in their cavities, length, bredth, and thickness, and in all these proportionably; they cannot I think but (without a *Metaphor*) be referr'd *suo modo* to the family of *plants*; as has been most fully made out by the learned Dr. *Glisson**. And thirdly, that *horns*, *hair*, and *wool*, though they seem so different, yet as *trees* in some measure partake of the *Soile* in which they grow, so all these seem to be constituted of the same common matter with the *Skin* it self, and to be of the same *lineage* or *family*, and so all the *membrans*, *nerves*, and *nervous fibres*, wheresoever in the body: which most evidently appears in their being exposed to the *fire*, all *shrivelling* up after the same irregular manner, breathing the same *fetid odour*, and being of the same *Medical* use: *qualities* that never are found in things of different *Species*'s.

59. Thus *horns*, *wool*, or *hair*, exposed to the *flames*, are furled up, and send forth the same *nauseous scent*; so that *hair*, and *wool*, seem to be nothing else but *imperfect horne*, or the *fibres* of *horn* seperated, and not *fasciated* together as they are in intire *horns* and *hoofs*, and as the *stalks* of some *plants* are, when there is an *exuberancy* of matter: *haire*, *wool*, or *weak hornes* being then produced, when the *Juices* whence they spring, are some way *depauperated*; and *strong horns*, when they abound and are vigorous. Whence it is that *Bulls* whose blood and seminal juices, are spirituous, hot, and plentifull; have thick, short, and strong *horns*, in proportion to the hair of *Men* of robust Constitutions, which is commonly short, course, and curled: whereas *Oxen*, whose blood and juices by *castration* is in great measure enervated, produce but a thin, weak, and long horn, in proportion to the hair of *women*, which is generally longer, finer, and less curled, than that of *Men*. But in some *Sheep*, and all *deer*, whose blood and seminal juices are much less vigorous than that of *Bulls*, the *superfluous juices* that give both birth and augmentation to *horns*, are so diminisht and weaken'd in them by *castration*, that they can afford

* *Fran. Glissonii Tractat. de partibus continentibus, cap.* 6. §§. 2, 3, 4, 5, & 6.

no

no ſupply for the production of them at all, but only of *wool* or *hair* which as I ſaid before are an imperfect ſort of *horn*; whence it comes to paſs that *Weathers* (theſe *ſuperfluous juices* being now wholy ſpent in the production of *wool*) are ſaid to have greater *fleeces* than other *ſheep*; and that *Staggs* and *Bucks* if gelt, never mew their *heads* like other *deer*, there being now no new matter to cauſe a new *horn* to put up, and thruſt off the old one.

60. Yet in ſome ſort of *Sheep* theſe *ſuperfluous juices* are ſo very plentifull and ſtrange, that they produce 4 or 6, and ſometimes eight *horns* upon the head of the ſame *Sheep*; whereof there are plenty with *four* in this *County*, at *Gnoſall*, *Knightley*, *Blore*, and *Ingeſtre* parks; and as I was told there were of them formerly in the park at *Loxley*; *Johnſton* gives us a *Cut* of one of them, calling it *Hircus Cotilardicus* with ſix horns [y]; and *Dietericus Brinckius*, tells us there are of them in the *Iſle* of *Loufouden* on the coaſt of *Norway*, with eight [z]. Dr. *Grew* in his Catalogue of the Rarities in the *Muſæum* of the *Royal Society* at *Greſham College*, calls theſe *Moſcovy* Ramms, and perhaps not amiſs, the deſcription of which *Animals*, or their *hornes*, he ſays he could meet no where [a]: But had he conſulted the *Natural Hiſtory* of *Oxford-ſhire* printed 7 years before his *Edition* of that *Catalogue*, he might have found ſome account, and *Cutts* of them too: there having been of them living many years before my travelling that *County* in the right Honorable the Earl of *Abbingtons* park at *Ricot*, and in divers other parts both of *England* and *Wales* [b]. Now whether caſtration of theſe, whoſe *juices* are ſo ſtrong, will wholy take away, or any way diminiſh the number or magnitude of their *hornes*, as in ſome other *Sheep*; or augment them as in *Oxen*? perhaps may be another *Queſtion* yet undecided, and worthy the obſervation and communication of the *Naturaliſt*.

61. *Sheep* then being reckon'd amongſt the *cornigerous Quadrupeds*, as ſeldom being otherwiſe but upon accident only; let us return again after this long, but I hope not impertinent digreſſion, to ſuch uncommon *accidents* as have been found to attend them in this *County*. For I account it but accidental, that they have in the *Moorelands* a peculiar ſort of them, that have all *black noſes*, which thrive well enough on the barreneſt Soile, and produce pretty good wool, yet too long for the uſe of the *Felt-makers* of *New-Caſtle*, unleſs for *childrens* hatts, which they attribute wholy to the *Limeſtone* rocks on which it is bred; the beſt being produced upon dry Sandy Soils, ſuch as *Beech*, *Swyn-*

[y] *Joh. Johnſtoni Nat. Hiſt. de Quadruped. Tab.* 27. [z] *Dieter. Brinckii Prodrom. e Norwegia cap.* 8. [a] *Neh. Grew. Muſæi Reg. Societ. part.* 1. *Chap.* 2. [b] *Nat. Hiſt. of Oxfordſh. Chap.* 7. § 39. *Tab.* 10. *Fig.* 10, 11.

nerton, *Mare*, *Chedleton*, and *Drayton*, of which (being pretty ſhort and fine) they make ſome uſe; but cheifly of the wools of *Shropſhire*, and *Lemſter*: moſt of the ſhorteſt and fineſt wools of this *County* being ordinarily ſold into *Warwick* and *Glocesterſhires*; and their longeſt, which are bred in the moiſter Soiles, which they otherwiſe call *broad-wools*, into *York-ſhire* and *Lancaſhire*, where they make courſer clothes.

62. It being ordinary for *Sheep* to breed but once in a year, it may perhaps be remarkable, what was told me by the worthy Mr *Bott* of *Dunſtall*, *viz.* that he had a *Sheep* about 12 years agoe, that brought him one *Lamb* at *Chriſtmaſs*, and another at S^t. *James* tide after; and another *Ewe* that had two *Lambs* about three weeks before *Chriſtmaſs*, a third about a week after *Midſummer*, and a fourth upon *twelft day* following; ſo that within thirteen months ſhe brought 4 *Lambs* at three yeanings: the latter whereof were both *ſuperfetations*, occaſioned no queſtion by goeing to *Ramm* at ſo many diſtant times. Whence 'tis plain that ſuch *Animals* as theſe will admit of *coition* after impregnation as well as *Mares* and *Women*; in the former whereof though *Ariſtotle* allows no *ſuperfetations* to have ever happen'd, yet in the latter he affords us ſeveral *Examples*: more particularly of an *Adultereſs*, who was delivered of one child like her *husband*; and of another after, like the *Adulterer*; and of two others that had two children at a birth, and a third five months after[c]. And of later years D^r. *Harvey* tells us of a *Servant* Maid gotten with child by her *Maſter*, that was ſent to *London* in *September* to hide her ſhame, where being brough to bed well, and returning home, had another unexſpectedly in *December*, whereby her own and *Maſters* faults (before ſucceſsfully concealed) were unhappily diſcovered[d]. And this is all I heard of extraordinary relating to *Sheep*, but that An^o. 1679, a *Lamb* was yeaned at *Bentley* green with the two hind leggs wreath't together, ſo that it went *per ſaltum*, with the thighs on the ground, drawing the double Leg after it.

63. It is alſo very remarkable in the breeding of *Deer* (which are alſo reckon'd amongſt the *horned Animals* that chew the *Cudd* though the females never have any) that they ſometimes caſt *Fawnes* with their lower jaws ſo ſhort, that they cannot ſuck, and ſo conſequently all dye; and it is no leſs obſervable, that theſe ſhort jawed *Fawnes* are all *white* ones, as if this were a colour of imperfection in *Animals*, as well as in *Plants*[e]. Of theſe the worthy M^r. *Chetwynd* had ſeveral caſt in his Park at *Ingeſtre* An.

[c] *Ariſtotelis Hiſt. Animal. Lib. 7. cap. 4. & Plinii Nat. Hiſt. Lib. 7. cap.* 11. [d] *Gul. Harvei Tract. de Partu. p.* 261. [e] *Nat. Hiſt. of Oxfordſhire Char. 6. §. 38. and Chap. 7. §§. 13, 14, 15.*

1680;

1680; and ſo had the right Honorable *Robert* Lord *Ferrers* at *Staunton* in *Leiceſterſhire*; the ſame I alſo met with long ſince at *Watlington*-park, belonging to the Worſhipfull *Thomas Stonor* Eſq; in my travells thro' *Oxfordſhire*, but looking upon it then as a ſingle accident, I took no notice of it in that *Hiſtory*. In the breeding of *Deer*, it has alſo been obſerved at *Chartley*†, and elſewhere in this *County*, that upon killing of them, there has been ſometimes found the bones of young *Fawnes* in the *matrix's* of the *Does*, which doubtleſs have dyed in them upon ſome unfortunate blow or other accident, as in the caſe of the *bitch* above-mention'd §. 53. of this *Chapter*.

64. The ſame I have heard has likewiſe happen'd to a *Doe* in *Woodſtock* park in the *County* of *Oxon*. And at ſome other places: and in the parke at *Ingeſtre* a *Hare* was kill'd ſome time ſince, that had all the bones and furr of a young *Hare* in her, complicated up together into a round ball: which *accidents* are ſo far from always proveing mortal to theſe *Animals*, that they may poſſibly be impregnated after them, and produce other *Fawns*, or *Hares*, theſe *bones* of the former dead *Fætus's* ſtill remaining within them: for I know not why a *Doe* or *Hare* ſhould not be capable of this, as well as a *Cow* or *Woman*: there haveing been a *Cow* kill'd at *Hopton* in this *County* that had an intire perfect *calf*, and the *bones* of another found in her; and *Katherine Parry* of the pariſh of *Kintbury* in *Barkſhire* haveing been deliverd of a child *An.* 1668 after ſhe had had a human *Fætus* dyed in her: as appeared from a great quantity of *corruption*, with ſeveral pieces of *fleſh* and *skin*, that came from her two or three days after her *delivery*, and from divers *bones* that ſhe voided with her monthly evacuations, with ſeveral parts of a *Skull*, and ſome of the larger *bones* of the body of a *Fætus*, that work't their way through her fleſh above the *Os Pubis* five years after: within which time ſhe conceived again 3 ſeveral times, and had 3 children more at 3 following *births*, after the laſt of which only theſe *bones* came away[f]: as the *bones* of a former child did, from a *Citizens* wife of *Wenden* in *Livonia*, a year after ſhe had been deliver'd of a perfect living child, as was teſtifyed by a publick inſtrument under the common Seal of the *City* *.

65. Beſide theſe unuſual *accidents* in the breeding of *Deer*, there are many others worth notice that have happen'd to ſome of them, ſince their being *caſt*, in relation to their *heads*: many of the *redd deer* in *Chartley* park having no *heads* at all, others

† *In Novemb. An.* 1679. [f] *Journal. Book of the* Philoſophical Society *of* Oxon. *Seſſion of Octob.* 7. *in An.* 1684. * *Tho. Bartholini Hiſtor. Anatom. Cent.* 4. *Hiſt.* 14.

being *Unicorns*, and thoſe that have but one horn, that but a dwarf one neither, and commonly very irregular; the *deer* notwithſtanding being as well grown in their bodies, and as *warrantable* in their ſeaſon, as in any of the neighbouring *Forreſts* or *Parks*, where they put up as *fair heads*, as in any parts of *England*. Which abatement therefore of their *heads*, muſt needs proceed, either from ſome defect in the *Park*; or ſome accidental *alteration* of the ſoil; as it happen'd at *Cornbury* in *Oxfordſhire*, where the ſtocking the park with *Conys* only, made all the *deer* thus abate of their *heads*, upon what account ſee the *Hiſtory* of *Oxfordſhire* [g]. But the *reaſon* there given having no place here, I can aſſigne no other ſo probable as the *want* of *brouſe* in this park, the underwoods being but inconſiderable in reſpect of its extent, and the trees moſt of them dead, as repreſented in the *Map*, the *leaves* and young *Cions* of plants ſupplying it ſeems fitter matter for the *heads* of *deer*, than graſs or other forrage. But whether this will hold at *Wyſe-wood* in *Gloceſterſhire*, where I hear there are alſo *Staggs*, ſome with no *horns*, others with very ſhort ones; I have yet had no opportunity of learning.

66. Other irregular *Bucks-heads* I met with at *Ingeſtre* and *Dudley*, and ſome other places: that in the Hall at *Ingeſtre* being a large *head* of a full grown *Buck*, which put up all the time from the *burrs* only two ſmooth *beams*, having indeed *brow-Antlers*, but no *back* ones, *palm*, or *ſpellers*, as in *Tab.* 22. *Fig.* 11. Such another *head* as this I met with at *Tortworth* in *Gloceſterſhire*, in the Hall of the right Honorable the Lady Viſcounteſs *Downe*; ſo that I cannot look upon this as a ſingle accident, but one that happens ſometimes, though not frequently. The other at *Dudley*, is of a living white-*Buck*, kept within the *Caſtle* by the right Honorable the Lord *Ward*, which puts up annually form the *burrs* only two *beams*, without either *brow* or *back-Antlers*, *palm*, or *ſpellers*, aſcending pretty ſtraight, and adorned at the top with *balls* or *knobbs*, as in *Tab.* 22. *Fig.* 12.

67. *Olearius* in his *Itinerary* tells us of whole heards of ſuch, call'd *Ahu* deer, he ſaw in the Province of *Mokan* in *Perſia*, whoſe heads had no *brow-Antlers*, but were ſmooth to the top like ours, only that they bent backwards like the horns of a *Goat* [h]; which (beſide the unlikelyhood that this ſhould be brought thence) is enough to ſhew that it cannot be referr'd to that *ſpecies* of *deer*: though no body knows whence this came, it being taken alive by the *Colliers* in an old *Coal-work*, and brought to the *Caſtle* bound in a Wheel-barrow. Contrary to theſe I met with ſome other

[g] *Nat. Hiſt. of Oxfordſh. Chap.* 7. §. 45. [h] *Voyages of Adam Olearius Book* 5.

heads

heads ſpred into three branches, having all their *Antlers*, *palms*, and *ſpellers* whereof there is one at *Chartley*, and another (I think) in the houſe at *Sandon*: and I was told by the Worſhipfull Collonel *Edward Vernon* deputy Lieutenant of that *Forreſt* of *Needwood*, that there was a buck now living in the *Forreſt*, that had a *head* ſpread into 4 branches; which as the former were defects, are exceſſes of *Nature*; and proceed no queſtion from the exuberancy of Matter that ſupplys theſe parts. And ſo much for *Deer*.

68. Let us next proceed to *Cows*, *Oxen*, and *Horſes*, and ſo conclude this ſeventh *Chapter*: of the former of which, my worthy friend Mr. *Bott* of *Dunſtall* had one ſo prolific near 30 years agoe, that ſhe brought him 2 *Calves* at a time, 3 times together; and the fourth time three; ſo that ſhe had 9 *Calves* in 3 years time. One *Thomas Laurence* of *Wombourn* alſo had a *Heifer*, that at two years old brought him 3 *Calves*, then two, then two more, and at laſt 3 again; haveing ten *Calves* within the ſame time. Nor hath the fecundity of this *Animal* been more conſpicuous, in the multitude and frequency of its *Off-ſpring*, than in the earlineſs of it; there having been a *Cow-calf* at *Cannal* in this *County*, the Seat of the right Worſhipfull Sr. *Francis Lawley*, that (like Mrs. *Dunches* at *Newington* in *Oxfordſhire*[i]) had another preſently after ſhe was eleven Months old, *viz.* 3 weeks and ſome odd days, before ſhe was a *Twelve-monthing*. I have it alſo from very good hands, that *Tho. Bratt jun.* of *Wolverhampton* Butcher, bought a *Cow* at *Tole-end* in the pariſh of *Tipton*, with a *calf* by her ſide, which promiſing well, he forbore to kill, letting it goe with the *Damm* till it weaned it ſelf, by reaſon (as 'tis thought) the *Damm* was ſo far gone with another *calf*, that it liked not the milk; or elſe becauſe gone as far it ſelf with *calf*, at the ſame time; they both *calving* within a week of each other, the *Heifer* wanting a fortnight of being 12 Monthes old.

69. Which ſort of *Cattle* goeing nine *Months*, we muſt either admitt that theſe *calves* took *bull* at about two Months old; or that their *Damms* caſt them at firſt pregnant with others, like the *Hungarian* Cow mentioned by *David Spilinbergerus*, which brought forth a Calf with a great belly, wherein was found another with all its limbs perfect[k]; and as it was in a *Lamb* of *Thomas Grove* of *Rowley Regis* in this *County*, which he ſold to a Butcher, who killing it, found another *Lamb* in its belly. As it hath alſo hapened in a human *Fœtus*, and in ſome other *Animals*[l]. Now

[i] *Nat. Hiſt. of Oxfordſh. Chap.* 7. §. 41. [k] *Miſcellan. curioſ. Med. Phyſ. German. An.* 1. *obſerv.* 36. [l] *Nat. Hiſt. of Oxfordsh. Cap.* 7. §. 42.

how ſuch wonderfull productions ſhould come to paſs is hard to determine: I am ſure *Bartholin's* conjecture; [that (*Nature* in theſe at firſt intended only *Twinns*, and that by ſome caſualty, *one* of each of theſe *Fætus*'s might be thruſt into the belly of the other, over which a Skin might be eaſily ſuperinduced [m]] ſeems very improbable: for why ſhould one *Fætus* tarry in the Womb twice as long as another? when ſuppoſed to be begotten at the ſame time. Therefore much rather ſhall I allow in our two *caſes*, that theſe *calves* took *bull* at about the age of two months, ſince the *Goat* is ſaid to begin to uſe coition at 7 days old [n], upon which account the *Emblematiſts* uſually expreſt *fecundity* by that *Animal*.

70. At *Frodley* in this *County*, *Elizabeth Scofield* widdow, had a *cow* that caſt a *calf* of a monſtrous ſhape, having a horn, the elder, and two leggs of *another* coming out of its back; which lived a long time, and as it fill'd it ſelf with ſucking or otherwiſe, ſo did the *calf* on its back: ſo that *Nature* indeed in this caſe ſeemed to have deſigned two *calves*, which poſſibly might be ſome way thruſt into one another, according to the ſentiment of *Bartholin*, as 'tis like it might alſo happen in the inſtance he mentions of *Lazarus Colloredo* and his brother *Baptiſt*[o]. But this will not reach the caſe of the *Hungarian* Cow; or the Sheep of M[r]. *Grove* of *Rowley* abovementiond; the *Spaniſh* Mare of *Nierembergius*; or of *Joan* the wife of *Nicholas Peter* of *Uleſlovia* in *Fionia*; each of which brought forth *Animals* of their own kind, impregnated with others, duly placed in the Womb [p]. The Calves that were caſt near *Shredicot*, and at *Rewle*, in the ſame pariſh of *Bradeley*, each with 5 leggs, muſt alſo be reckon'd amongſt the *monſters* of this *Species*; and ſo muſt that caſt at *Roycroft* in the pariſh of *Ruſhall*, which was a yard and an inch high at 2 days old, and had horns on its head an inch long, and (being a Cow-calf) milk in its elder; the former whereof perhaps might be occaſion'd, as the ſupernumerary leggs of birds, from *ova gemellifica* [q]; and the latter by the Cows *goeing* beyond her time. It muſt alſo be remembred before I have done with the *accidents* relating to *Calves*, that there was a *Cow* at *Thorp Conſtantine* about 12 years ſince, that being obſerved not to caſt her *calf* in due time, was fatted up, and kill'd; in whoſe *Matrix* (when open'd) there was found the *Sceleton* of a *calf*, all the bones hanging intirely together as in *Tab.* 22. *Fig.* 13. lying in a reddiſh weighty ſubſtance ſomewhat like *red-lead* or *bole Armeniac*

[m] *Tho. Bartholini Anatom. Med. rar. Hiſt.* 66. [n] *Sr. Th. Brown's Enquiries into vulgar Errors* Book. 5. *Chap.* 20 [o] *Ibid.* [p] *Nat Hiſt. of Oxfordſh. Chap.* 7. §. 42. [q] *Gul. Harvei, de Generat. Animal. exercit.* 23.

the

the fleſhy parts being either waſted by *corruption*, or dryed up by the heat of the *Womb*, like the Calf of *John Huſwig* Miniſter of *Fredericks-burg* mention'd by *Bartholin*†. Which no queſtion had been kill'd by ſome unfortunate accident, as the *Fætus*'s of the *Hare*, *Doe*, and *cow* above mentioned, the *bones* ſtill remaining thus within their bodies, though not perhaps in ſo good order as theſe.

71. It is a pretty common thing amongſt this ſort of *cattle*, to have *balls* of *hair* found in their *Stomachs* cover'd over with a ſmooth ſhining *coat* or *ſhell*, occaſion'd I ſuppoſe by their *licking* themſelves (which they doe moſt whilſt in proof) and ſwallowing the hair that then comes off them in plentifull manner; of which, elaborated in the κοιλία, or *reticulum*, the *firſt* or *ſecond ventricle* (where they are moſt times found [r]) theſe *balls* of *hair* are often formed, and compacted together much after the manner that the *wool* of a *Hat* is, by the hand of the *workman*; which lying in the Stomack ſome conſiderable time, has ordinarily a pretty thick and tough coat ſuperinduced over it, by the plenty of ſlime it there meets with: if it lye there long, it is uſually of a *cheſnut*; if a leſſer time, of an *aſh-colour*; of the former of which I met with a large fair pattern at Mr. *Fowk's* of little *Worley* in the pariſh of *Norton*; and of the latter had one ſent me from Mr. *Jackſon* of *Stanſop* in the pariſh of *Alſtonfield*. But if taken out of the Stomack quickly after 'tis elaborated, as it is ſometimes in young *calves* that are kill'd, the *hair* is not found cover'd with any *coat* at all, nor complicated like the former, the outer parts of the hair of them ſtanding up looſe, but lyeing parallel and winding, like the hair on the crown of a Mans head, which not being ſo common I have cauſed to be ingraven *Tab.* 22. *Fig.* 14. which was given me by the Worſhipfull *Jonas Groſvenor* of *Wolverhampton* Eſq; and taken (as he told me) out of the *Ventricle* of a young *calf*, not of age I ſuppoſe either to ſpare phlegme from its aliment, or afford time, for the ſuperinducing of ſuch a ſmooth ſhining *coat* or ſhell, wherein theſe *balls* are commonly found included.

72. Which *Pliny* would have only to be met with in the *reticulum*, or ſecond *ventricle*, calling them *tophos nigricantes* [s]; and *Ferrante Imperato*, *Topho di Giovenca* [t]; whom *Wormius* follows and ſtiles *tophos Invenci* [u]; but they doe not always ſtay either in the *firſt* or *ſecond ſtomack*, but ſometimes paſs on even into the *inteſtines*, as *Bauhinus* alſo owns [w], and are caſt forth by *Seige*;

† *Tho. Bartholini Hiſtoriar. Anatom. Cent.* 2. *Hiſt.* 2. [r] *Geo. Hieron. Velſchii diſſert. Med. Philoſoph. de Ægagropilis p.* 8. [s] *C. Plinii* 2di. *Nat. Hiſt. Lib.* 11. *cap.* 37. [t] *Dell' Hiſt. Naturale Lib. vigeſimo ottavo. cap.* 1. *in fine.* [u] *Muſæi Wormian. Lib.* 1. §. 2. *cap.* 8. [w] *Caſp. Bauhini de lapide Bezaar. cap.* 12.

whereof

whereof I have one by me found in the dung of a *Cow* at *Statfold* in this *County* and given me by the Worſhipfull *Francis Wolferſtan* Eſq; of a cineritious colour, not ſhining, and an oval figure, made ſo perhaps by the compreſſion in its *exit*. Which is alſo confirmed by *Wierus* who tells us of one drawn out of the *Colon* of a *heifer* at the City of *Piſa*[x]. Nor are they only found in the *inteſtines* of *cows*, but of *horſes* too; the ſame Mr. *Wolferſton* having met with another of them amongſt the *dung* of a *Horſe* at the ſame place; light, exactly ſpherical, of a dun colour; but not ſo bigg as that cut out of the Horſe of *Crenkus a Lippa* An. 1562 which was as bigg as a gooſe egg, and two pounds in weight, preſerved amongſt the rarities of *Rudolphus* King of *Hungary*[y]. *Scaliger* alſo informes us out of the *Commentaries* of *Moſes Kimhi*, of a horſe that voided many of theſe *tophi* by *Seige*, whereof he had one in his poſſeſſion[z]. And *Chilianus Hattomanus* of *Breſlaw* in *Sileſia* had a horſe that excluded many of them, being at laſt kill'd by one of an extraordinary Siſe, of which we have an account both in *Bauhin*[a], and *Schwenckfeld*[b], which they call *Hippolithos*, and from its ſuppoſed virtues *Bezoar equinum*.

73. There are ſuch *balls* too found in the Stomacks of *horſes* made up of the ſlender ſtalks of *Spartum minimum Anglicum* or ſmall Engliſh *mat-weed*, firſt diſcover'd to me by the ingenious Mr. *Cole* Surveyor of his Majeſties Cuſtoms at *Briſtol* and by him call'd *Spart balls* or *pilæ manſæ*; which I found alſo true in one that I had by me that was taken out of the *Maw* of a *Sheep*, and given me by a Country man (whoſe name I have loſt) of *Stanley* in in this *County*; there is alſo a *fibrous ball* taken out of the *Stomack* of a *Sheep* in the *Repoſitory* of the *R. Society* at *Greſham* College *London*[c]; both much ſuch other things I gueſs, and perhaps of as much virtue as the *balls* thus made out of the *roots* and *fibers* of *plants*, that are ſo commonly found in the *Stomacks* of the *Shamois* in the *Alpine* Countrys, by *Bauhin* and others call'd the *German Bezoar*, haveing a gratefull Aromatic ſmell even before they are opened[d]: which is not ſo much to be wondered at, being made up of the ſmall *roots* and *leaves* of the moſt odoriferous *Alpin* plants number'd up by *Velſchius* in his treatiſe *de Ægagropilis*[e] (which he thinks the moſt proper name for theſe *balls*) and not ſo much of the *roots* of *Doronicum*, as *Bauhin* would have them; the *Samois* frequenting many parts of the *Alps* where no *Doronicum* growes, the *roots* too of theſe *balls* being generally ſmaller

[x] *De præſtigiis Dæmonum Lib.* 3. *cap.* 5. [y] *Caſp. Bauhini de lapide Bezaar. cap.* 14. [z] *Jul. Scalig. Lib.* 15. *de ſubtilitate Exercit.* 125. [a] *Ibidem.* [b] *In Theriotrophio Sileſiæ, titulo Equus.* [c] *Muſæum Reg. Societat. Part* 1. *cap.* 2. *in appendice.* [d] *Caſp. Bauhini de lapide Bezaar. cap.* 13. [e] *Geo. Hieron. Velſchii diſſert. de Ægagropilis pag.* 35, 36, 37, 38.

than

than thoſe of *Doronicum*; yet for *Bauhin's ſake* he does not wholy reject them.

74. That ſuch balls ſhould be found in the *Stomacks* of *Animals*, is indeed a little odd; but it would be ſtrange if any ſuch *heterogeneous body* ſhould be naturally faſt lodged in any of the *vital* parts: and yet even this has been met with at *Caldmore* in this *County*, at the houſe of one Mr. *William Hawe*; where about *Chriſtmaſs An.* 1679 there was a large bone (conſidering the place) taken out of the *heart* of a *Beeve*, of the form and bigneſs as deſcribed in the *Cutt*, *Tab.* 22. *Fig.* 15. juſt two inches long, and pretty thick at one end; but there it has holes in it as repreſented in the *figure*, which ſhew it to be hollow and thin, yet it is very hard and ſolid. Such *bones* as theſe are commonly found in the *hearts* of *Staggs*, and are thought to be a help for the ſtronger and more ſteady motion of the *muſcles* of them [f]; to be a good *cordial* in *Phyſick*; and very uſefull in preventing *abortions* [g]; for all which ſuch a *bone* as ours out of the *heart* of an *Ox*, may perhaps be as well ſubſtituted, and as ſoon truſted.

75. Nor is it leſs ſtrange what happened at *Waſall* in this *County*, relating to one of theſe *Cattle*; where one *Richard Nichols* a butcher of the *Towne* killing a *bull* bred at *Rugely*, not at all diſeaſed, or any way differing from others of its kind that could ſenſibly be perceived, its *tallow* was found to *ſhine* ſo vividly in the dark, that they could ſee any part of the *room* by it; held to the *Chimney*, they could ſo plainly ſee all the *joynts* of the *bricks*, that they could number them; the *hand* laid upon it might be ſeen in all its parts; and others for experiment counted *Mony* by the light of it; held up to the *ceiling* it ſhon ſo ſtrongly againſt it, that it made a *circle* of *light* upon it; continuing thus to ſhine for about 10 days, notwithſtanding much prejudiced by peoples frequent handling it, that came in multitudes dayly to ſee it. That the *fleſh* of this *ſpecies* both young and old, will ſometimes *ſhine* in the *dark*, Mr. *Boyle* and Dr. *Beal* have both afforded us ample proof, in two *necks* of *Veal*, and a piece of *beef*; it hath alſo been obſerved by the ſame worthy *perſons* in a *pullet* and in *hoggs-fleſh*; and in all theſe whilſt freſh and good, before putrefaction [h]: but I have no where found that either the *fat*, *ſuet*, or *tallow* of any *Animal*, was ever lyable to this quality, though I ſee no reaſon but that they might become *luminous* upon the ſame principals that *fleſh*, and many other things ſometimes are ſo, the *niter* of the *Air* exciting the oily *ſulphurs* in them, which becauſe

[f] *Muſæum Reg. Societ. part.* 1. *Chap.* 2. [g] *Joh. Schroderi Pharmacop. Med. Chym. Lib.* 5. *claſ.* 1. [h] *Philoſoph. Tranſact. Numb.* 89. *and* 125.

diſcourſed of elſewhere in this *work*[i], I forbear mentioning them here,

76. And proceed to the moſt memorable *accidents* I heard of in this *County* to have at any time befallen the *Solipedous Animals*: whereof there was a *Mare* at a place call'd *Broadheath* betwixt *Sighford* and *Ranton*, that caſt a monſtrous *colt* with two hind leggs only. There was alſo a *Mare* at *Bagnal* in this *County*, in which dame *Nature* err'd in exceſs, as in defect in the *colt*, ſhe having *five feet* though but four leggs; the *fift* coming forth about the *fetlock* of one of the leggs, and hanging looſe and uſeleſs (as moſt *monſtroſities* of *exceſs* doe) which yet they were forced to ſhooe as well as the other four, it coming to ground, and therefore requiring the ſame preſervation, the reſt did. We may alſo reckon it an *exceſs* in a *Mare*, to caſt *two* Colts at a time, it being very rare that this ſort of *Animal* produces above one: yet that they ſometimes doe we have ample teſtimony, from the *Mare* of M^r. *Caldwall* Miniſter of *Millwich* that foled two at a time, which lived and thrived well; in the *rearing* whereof this was only *obſervable*, that the natural affection of the *Mare* toward them was ſo impartial, that ſhe never admitted them to ſuck but together. To which add a *Mare* of M^r. *Thomas Offleys*, that had all its limbs perfect and proportionable, without exceſs or defect, and was *five years* old; yet was but one yard, and three inches high: a ſtature ſo inconſiderable, that many who beſtrid it, reach't the ground with their feet, ſo that they ſeem'd to ride and walk at the ſame time. Nor muſt it be forgotten that at *Thorp Conſtantine* in the *Lordſhip* of M^r. *Inge*, there was a *Mare* bred that had a *bony* ſubſtance grew out of the hollow of her *Ear*, ſomewhat like to one of the *Molar* teeth of a *Man* at the upper end, but no *branches* or *fangs* at the bottom, having only a cartilaginеous ſubſtance there, obtuſe at the end, as in *Tab.* 22. *Fig.* 16.

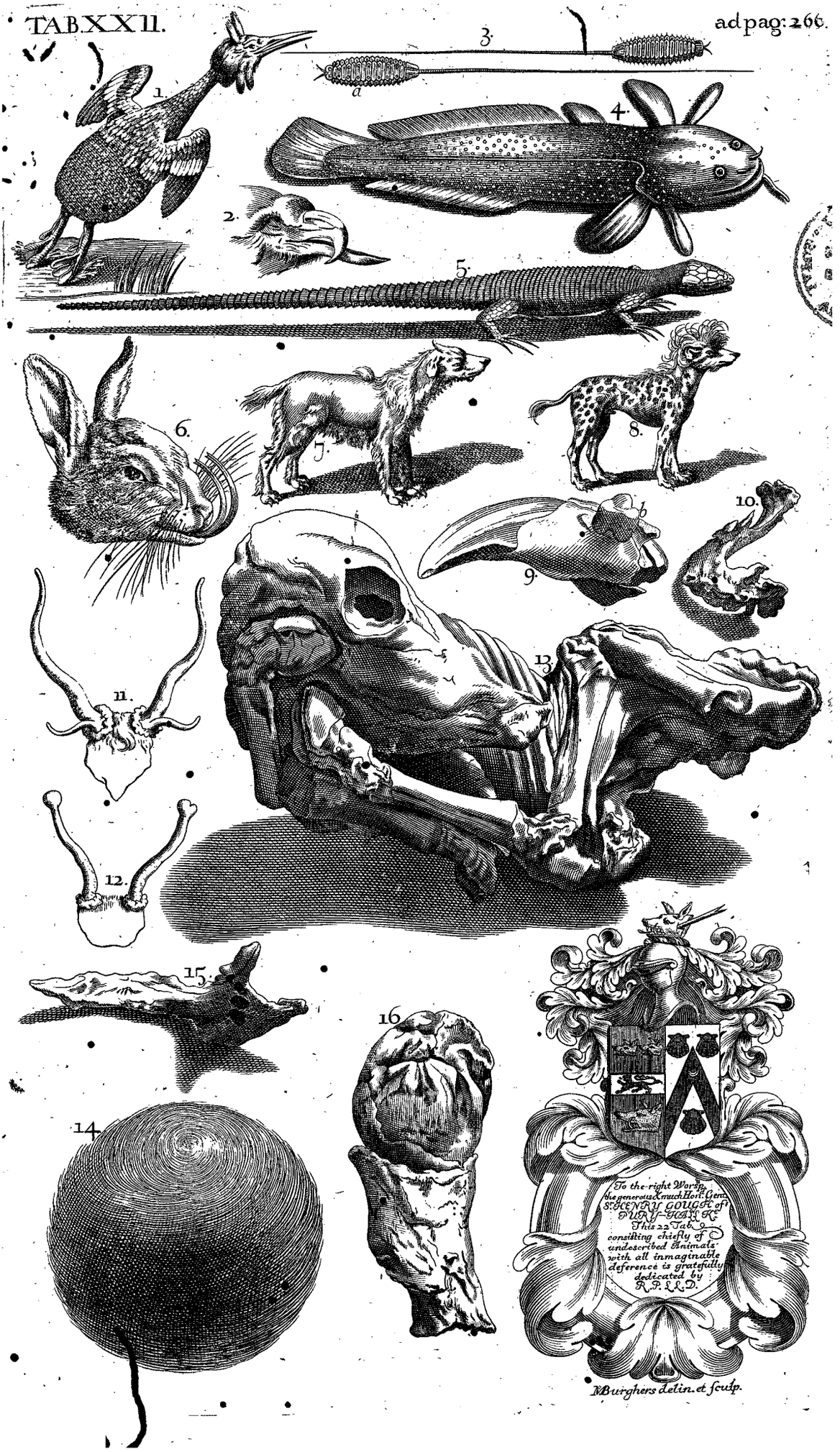
77. And thus I had done with *Horſes*, but that I was preſented with a rarity relating to them by the Worſhipfull *Francis Wolferſtane* of *Statfold* Eſq; which I cannot but mention in confirmation of a truth much doubted by many: it being a true *Hippomanes*, or Languet of fleſh of a *dark purple colour* near four inches long, that dropt from the *forehead* of a *Colt* newly foled in his grounds at *Statfold*, and brought him by one of his *Servants*; which he was ſatisfy'd was true, finding it agreeable upon application with it's *impreſſion* yet remaining upon the *foles forehead* when he went to viſit it. Such as which (they ſay) adhere to the *foreheads* of all *Colts*, and unleſs prevented, preſently eaten by the

[i] *Chap.* 3. §. 19.

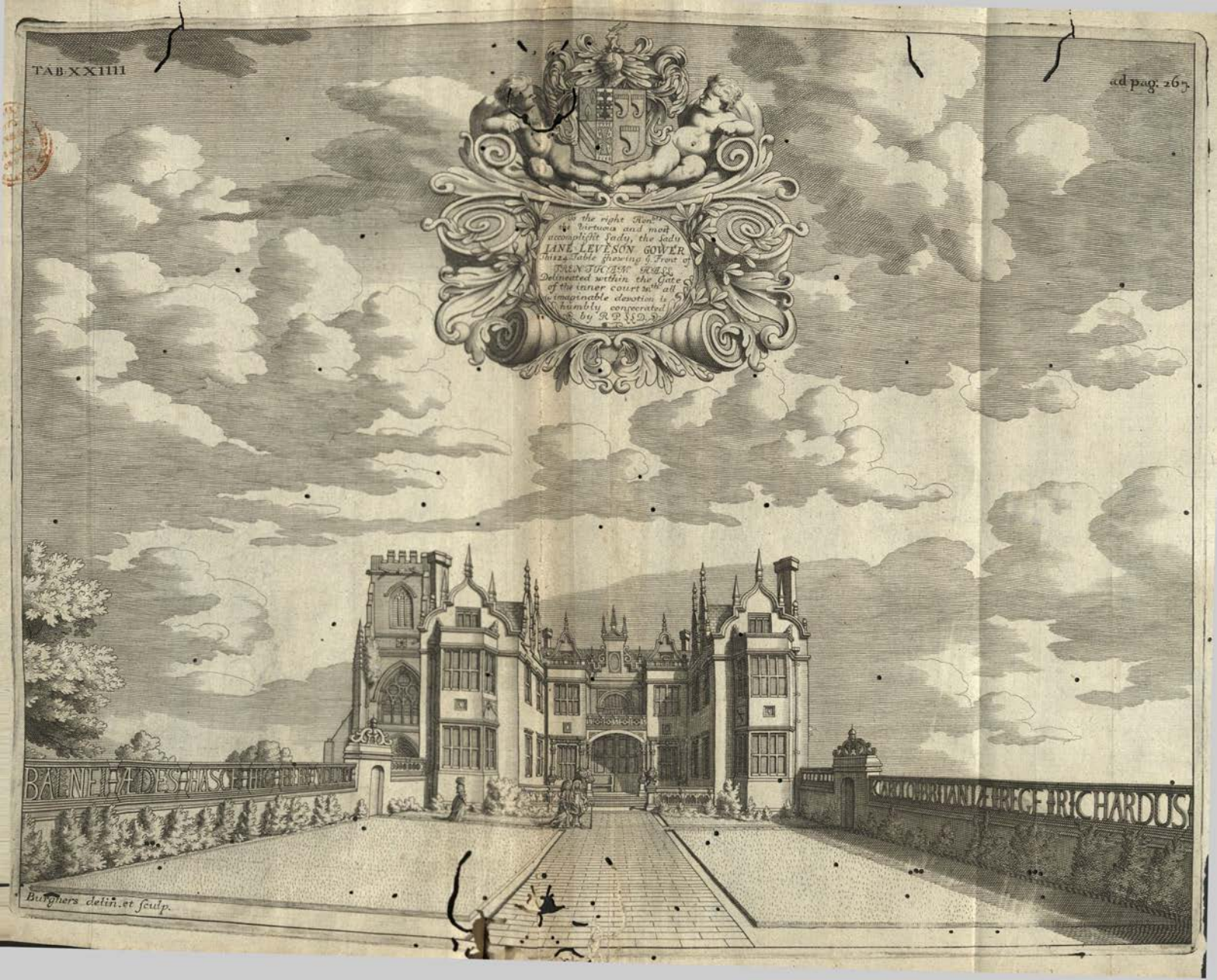
Mares

TAB. XXII.

ad pag: 266.



TAB. XXIII.
ad pag. 267.
To the Worp.^l the
ingenious and most obligeing Gen.
WILLIAM LEVESON GOWER Esq.
This 23 Table
Shewing the W. & by S. Prospect of
TRENTHAM HALL
Taken from y^e Hill near y^e Cistern
with the highest resentment of
his many & great favours
is gratefully offer'd
by R. P. LL. D.


TAB. XXIIII
ad pag. 267.
To the right Ren.ᵈ
the Virtuous and most
accomplisht Lady, the Lady
LANE LEVESON GOWER
This 24 Table shewing G. Front of
TRENTHAM HALL
Delineated within the Gate
of the inner court w.ᵗʰ all
imaginable devotion is
humbly consecrated
by R.P.S.S.D.
BALNEIHADESHASCHHCHRHVDUE
KAROLO BRITANIÆ REGE RICHARDUS
Burghers delin. et sculp.

Mares; but if taken from them, they never ſhew *love* to thoſe *colts* more, nor will admit them to ſuck: whence it has always been eſteemed ſo prevalent in procuring of *love*, that dryed pouder'd and mixt with the blood of the *Lover*, and drank by the *Miſtris*, it drives her to ſuch an unbridled height of luſt, as equals the madneſs of a *Mare* when ſhe deſires the *Horſe*, and upon this account has gain'd the name of *Hippomanes*: which is no new thing, it being mention'd by *Virgil*, *Ovid*, *Juvenal*, *Tibullus*, *Propertius*; and *Ariſtotle*, *Pliny*, *Solinus*, and *Columella*; and moſt of the other old *Poets* and *Naturaliſts*, as a thing of this *virtue*; and uſed as an ingredient among the other odd materials of *Witches* and *Conjurers*. Which whether true or falſe; or of any ſuch virtue to deſerve the *name* it enjoys; I doe not, nor care not to underſtand; it being ſufficient to me (tho' *Ariſtotle* explodes it[k]) that there is ſuch a thing.

78. And thus I had done too with all the μονόνυχα or *Solipedous Quadrupeds*, but that I was preſented with the lower jaw of ſome *Animal* with large teeth in it, dugg up in a *marle-pit* ſomewhere in the grounds of the Worſhipfull *William Leveſon Gower* of *Trentham* Eſq; who hath been ſo noble a *Mæcenas* in promoting this *Work*, that I could doe no leſs than preſent the *Reader* with a double *Proſpect* of his magnificent *Seat*, *Tab.* 23. and 24. Which jaw upon compariſon I find ſo agreeable with the *Elephants* Skulls in Mr. *Aſhmoles Muſæum* in the Univerſity of *Oxford*, that I dare not pronounce it any thing elſe but the jaw of a young *Animal* of that *Species*; and therefore rightly placed here, the *Elephant* being one of the *whole-footed Quadrupeds*. All the difficulty is, how it ſhould come hither, this *Animal* being a rarity even at this day in *England*: to which we muſt anſwer, that it muſt be the jaw of a young *Elephant*, either kept for the ſtate or pleaſure of ſome great perſon hereabout; or brought hither for *Shew*, which dyed and was here buried; as the *Dromedary* brought into this *County* within memory for the ſame purpoſe, dyed by the negligence of his *Keeper* and was buryed (where he dyed) in *Tixall* field: whoſe *bones* hereafter if ever found, may create as much wonder as this has done.

[k] *Ariſtot. de Hiſt. Animal. Lib.* 8. *cap.* 24.

CHAP. VIII.

Of Men and Women.

1. MAN, the Subject matter of the following *Chapter*, being but a ſingle *Species* of the *Animal Kingdom*, and that too which the *Logicians* call *ſpecialiſſima*, whereof there is no variety of inferior *Species*'s that can be hoped to be found, into which it may be ſubdivided, ſo as to advance any *matter*; one would have thought at firſt ſight ſhould have been ſo narrow a *Theme*, that it might well have been conſider'd in the former *Chapter* among the other *Animals* without danger of prolixity: but *Man* being appointed by his *Creator* the *Lord* of all below, having the ordering and diſpoſing of all things here both in relation to *Himſelf* and the inferior *Animals*; and not living ſo much within bounds as he ſhould; but debauching his conſtitution with too many *ſenſual delights* of all kinds; has rendred Himſelf lyable in the manage of all theſe *policies*, to ſo many unuſual *accidents* and *diſtempers* in the courſe of his life; that I gueſs I may find the *relation* of them, together with thoſe of his *birth* and *death* that have happen'd but within the narrow verge of this *County*, ſufficient to ſupply matter for another *Chapter*. Which I ſhall treat of (as I ought at leaſt in a *Natural Hiſtory*) according to the order of *Nature*: beginning firſt with ſuch uncommon *accidents* as have befallen *Mankind* at or before his *birth*, then in his courſe of *life*, and laſtly at his *death*.

2. But before I enter upon the *births* of *Men* and *Women*, it may be worth notice perhaps that I met with one at *Millwich* of a 11 years old, the *child* of one *Philips*, that ſeemed to be *neither*; the *Sex* not being to be diſtinguiſh't by the uſual *marks*, nothing appearing in the place but an unuſual *aperture* of a *raw membrane*; which I gueſs might be nothing elſe but the neck of the *bladder*, the childs *urin* conſtantly diſtilling thence: upon which account of the uncertainty of its *Species*, being in all other parts perfect and well proportion'd, it was Chriſtened *Franc.* this being a *name* in common ſpeech indifferent to both *Sexes*. But I think they needed not have been ſo nice in this matter, had they well conſidered; for though 'tis plain *Nature* was diſappointed in perfecting this *child*, yet ſhe has done enough to ſhew what ſhe

intended; the *child* ſeeming to have ſomewhat of a *Scrotum* below the *aperture*, though none of the other *eſſentials* of *Manhood*.

3. All unuſuall *marriages* muſt alſo be precedent to the *births* of *children*; and ſo muſt the *unſeaſonable times* of their Parents *getting* them; a *Man* 'tis true may *marry* at what *age* he pleaſes, but he ſeldom does after *eighty* years of age; much leſs can he get *children* after that time: wherefore *Pliny* mentions it as an extraordinary thing that *Cato Cenſorius*, and *Voluſius Saturninus*, begat *Sons* after they were paſt that age; and that King *Maſſiniſſa* begat his Son *Mathimathnus* at *eighty ſix* years old; and for *Women* he ſays in general they are paſt *child-bearing* at *fifty*[a]; which ſeem to be the ultimate limits of time, after which neither *Men* or *Women* marry, or can get children. Yet both theſe fall ſhort of what I met with in this *County* (and which is more extraordinary) in the ſame *marryed couple*: one *John Beſt* of the pariſh of *Horton* a man of a 104 years of age, having not many years agoe marryed a woman of 56. Upon whome he got a *Son* ſo very like himſelf (as I was told by Mr. *Smith* of the ſame *pariſh* who was *Godfather* to the child) that no body doubted but he was the *true father* of it. Which is more than what *Levinus Lemnius* relates from the Teſtimony of a *Maſter* of a Ship worthy of credit, that being at *Stockholm* in *Sweden*, he was called by the *King* himſelf to be preſent at the marriage of a *Man* 100 years old, who taking a *wife* of 30, had many children by her[b].

4. Before the *birth* of *Children*, ſo powerfull is the *Pica* or *Longing* of a *Woman*, that in caſe ſhe be not preſently ſupplyed with the *object* of her unreaſonable extravagant *appetite*, ſhe frequently *marks* her *child* with ſome reſemblance of it: whereof we daily ſee ſo many *examples*, that it would be impertinent *here* to inſtance in any. But the *marks* ſhe ſometimes gives her *child* upon a *fright*, are ſo very obſervable, that they muſt not be paſs't over; theſe being many times more than Skin deep: as I noted it in a *Gentlewoman* I once ſaw at *London* that had the *figure* of a *Mouſe* on her *cheek* ſtanding fourth protuberant *in mezzo rilievo* with the furr on, given her by her mother upon a *fright* ſhe received from that *Animal*, whil'ſt ſhe went with child of her. Nay ſo ſtrong impreſſions doe ſuch *frights* ſometimes make upon *women*, that they will break the very Skins of the *Fœtus* in the *Womb*, as we read in the *Tranſactions* of a *Souldiers* wife that had ſeen ſome body ſore wounded and disfigured, produced a *child* wounded after the ſame manner, pieces of fleſh in the ſhape of *Piſtol-bullets* hanging to its body, &c. as it is there repreſented *Fig.* 13[c].

[a] *C. Plinii* 2^di^. *Nat. Hiſt. Lib.* 7. *cap.* 14. [b] *Levini Lemnii de occult. Nat. mirac. Lib.* 4. *cap.* 24. [c] *Philoſoph. Tranſact. Numb.* 160.

5. But I never met with an inſtance in all my *Travells* where any of theſe *impreſſions* were ſo very ſtrong that they diſmember'd the *Fætus* in the ſame part the object was, which gave the fright, till I came to *Leek*, where *Elizabeth* the wife of *Jeremiah Tomkinſon* having heard that one *John Heath* a *Black-Smith* who lived in her houſe, upon reading that of S^t. *Matthew Chap.* 5. v. 30. [*if they right hand offend thee, cut it off*] had repaired to his brothers houſe a *Wood-man* of *Cunſall*, and taken oportunity with one of his brothers *inſtruments* to cut off his *right hand*; was ſo affected with it, being then about the time of her *conception* (though ſhe ſaw not the fact, nor heard of it till next day after it was done) that ſhe brought forth a man child (whom I ſaw my ſelf *An.* 1681) without a *right hand*, couped at the wriſt much about the place where *John Heath* had cut his hand off. Which I take to be almoſt as ſtrange an inſtance of the kind, as any of thoſe mention'd by *Bapt. Van Helmont:* who tells us of a *Taylors* wife of *Mechlin* who ſeeing a *Souldier* looſe his hand in a conflict before her doore, was ſo terrifyed with it, that ſhe preſently was deliver'd of a *daughter* with one *hand*, the other being cut off, and the child bleeding to death of it. And that the wife of *Mark de Vogeler* a Merchant of *Antwerp*, in the year 1602, ſeeing a *Souldier* begging, who had his right Arm ſhot off by a bullet at the Seige of *Oſtend*, which he carryed about with him bloody, I ſuppoſe to move pitty; was preſently brought to bed of a *daughter* alſo without a *right Arm*, who was after marryed to one *Hoochcamer* a Merchant of *Amſterdam*, and was living in *An.* 1638†.

6. Alſo before the *birth* of *Children*, ſo many and ſo apparent are the uſual *Symptoms* commonly known by *Women*, about the time of *conception*; during their *goeing* with *child*; and when near their *travel*; that one would think a *woman* truly with *child*, could never be ſo miſtaken, as I was told the wife of *Samuel Ward* of *Mearton* in this *County* really was: who after ſhe had been marryed two years, was brought to bed of a *daughter*, both her ſelf and *husband*, ſo little knowing, or ſo much as thinking ſhe was ever with *child*, that growing ill near the time of her *labour*, they ſent for a *Phyſician* inſtead of a *Midwife*. For one to have all theſe *ſignes*, and yet no *child* at laſt, is pretty common amongſt *women*; nay ſo farr is it from a *miracle* that they are ſometimes incident to *ancient women* paſt the age of child bearing, whereof M^rs. *Bromwich* of the pariſh of *Newland* in the *Forreſt* of *Dean* in *Gloceſterſhire*, who had all the Symptoms of a *pregnant*

† *Joh. Bapt. Van. Helmont cap. de injectis materialibus pag.* 383. *Edit. Venetiis An.* 1651.

woman

woman at near 80 years of age, is a moſt remarkable inſtance[d]: but to have a child in this manner, and none of the concomitant *Bones*, is ſo very rare, that I have not yet met with a parallel *Hiſtory* in all my reading.

7. Amongſt the *unuſual accidents* in the *birth* of *Man* we muſt reckon the ſurprizing production of *Monſters*, whether in exceſs or defect; to the former of which the ancient *Hiſtorians* have uſually referr'd ſuch as are *born* with *teeth*, it having been always look't upon very extraordinary to be ſo born, *children* ſeldom breeding them till the *ſeventh month* after their *birth*. Yet *Sarah Wood* of *Brineton* in the pariſh of *Blymhill* An. 1670. was thus born with two teeth, which was anciently accounted very unfortunate both to *Men* and *Women*, as in the inſtances of *Valeria*, and our *Richard* the third King of *England*, who were both thus born, and one of them the cauſe of the ruin of *Sueſſa Pometia* a moſt flouriſhing *City*[e], and the other of a no leſs flouriſhing *Family*. But ſuch obſervations as theſe I take to be more beholding to *ſuperſtition* than *truth*; for we find that *M. Curius* (upon this account ſurnamed *Dentatus*) and *Cn. Papyrius Carbo* to be both born with *teeth*, yet came to be very great men, and right honorable perſonages[f].

8. More deſervedly by much are the *Monſters* of defect, I have met with in this *County*, referr'd hither; ſuch as that of *Elizabeth* the wife of *John Bird* of *Whittington* near *Lichfield*, who *An.* 1679. was brought to bed of a *child* without upper lip, noſe, or eyes; the hands turned upon the armes, and the feet upon the leggs, one of the heels extravagantly large, and a hole in the back without any backbone; it could not ſuck, but took milk and beer freely enough, whereby it lived 3 days, and then dyed. Which 'tis true was a birth imperfect and deformed enough, yet not near ſo much as that of the wife of one *Taylor* of *great-Heywood*, who in *January* 1684. as I received it in a Letter from my very good Friend Mr. *Sampſon Birch* Alderman of *Stafford*, beſide a a perfect *ſtill-born child*, was deliver'd of another *monſtrous body*, made up of a large *Cyſtis* or bagg about the thickneſs of a *Mans Scrotum*, ſmooth on the out ſide, and ſomewhat reddiſh, fill'd with a liquid ſlimy matter, but not fetid: in the upper part whereof was a round protuberant *bone* 3 inches and ½ in compaſs coverd with a thick fleſhy Skin beſet with ſhort hairs, in which were placed 8 *dentes molares* in a circular form, having a ſmall hole in the middle which led not farr: below theſe in another *bone* were placed 5 other teeth, alſo of the *molar* kind, four of

[d] *Philoſoph. Tranſact. Numb.* 172. [e] *C. Plinii* 2[di]. *Nat. Hiſt. Lib.* 7. *cap.* 16. [f] *Ibidem.*

them

them almoſt in a ſtraight line, and the fift a little below the two uppermoſt, which in ſhape, whiteneſs, &c. all ſo well reſembled *teeth*, that they could not be thought to be any thing elſe.

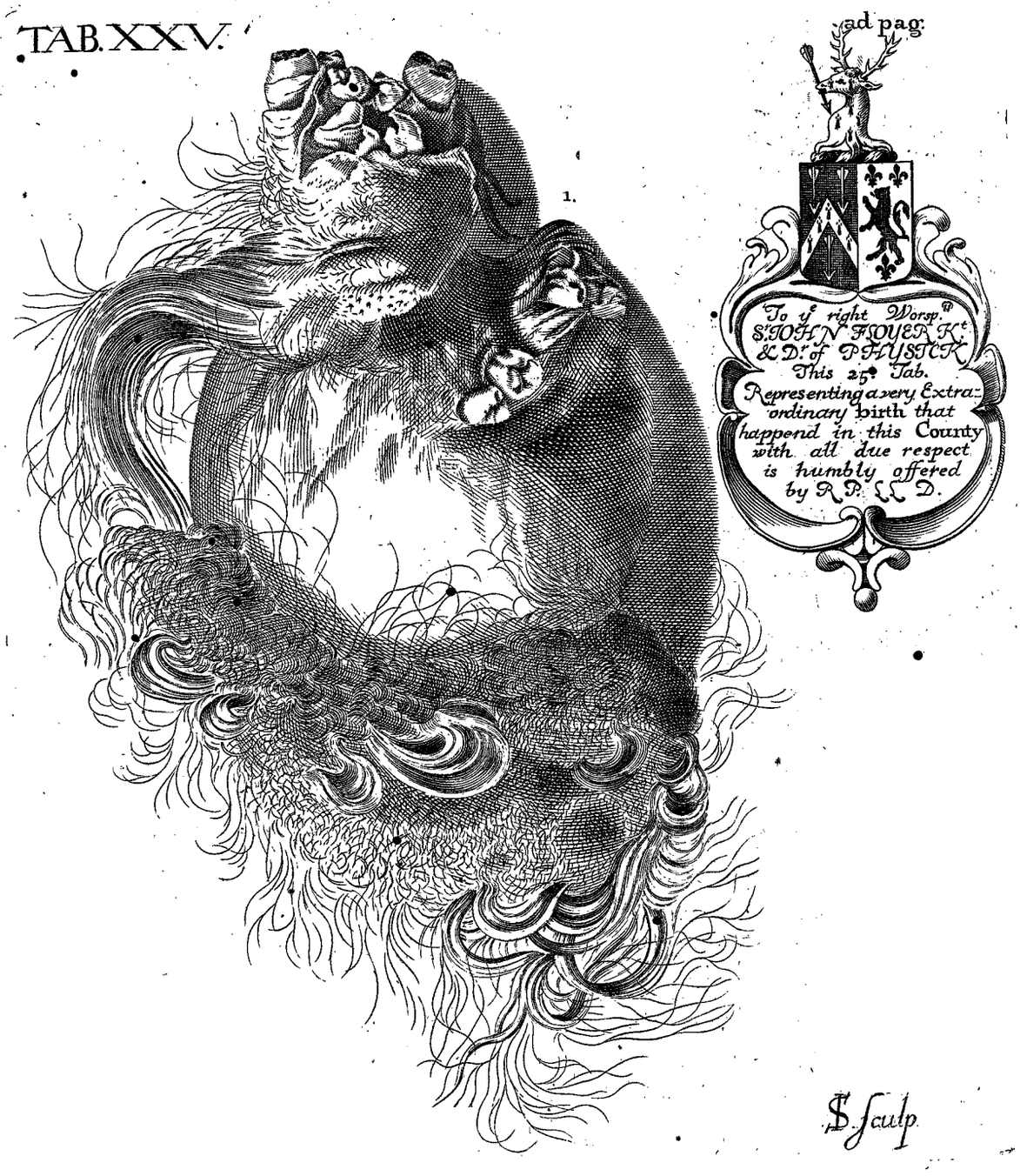
9. Out of the Skin of the *Cyſtis* a little below the uppermoſt *bone*, in which the *eight teeth* are ſet, grew a large *lock* of *hair* of a bright brown colour, whoſe end was intricate and intangled in a larger quantity faſtened in the other end of the *Cyſtis* oppoſite to the *eight teeth* of a more yellowiſh colour: all which may be conceived well enough by the *figure* of it *Tab.* 25. where it is exactly graven in its juſt magnitude. Now for a juſt account of this *Embryo* or *preternatural body* though it cannot be expected, yet I think I may pronounce without any great diffidence, 1. that it muſt come from an *Egg* that deſcended from the *Ovarium* through the *Tube* to the *womb*, as well as that of the *perfect child*; 2. that *Nature* in this birth at firſt intended *Twinns*; and 3 that the *bony* and *fleſhy* parts, out of which grew the *hair*, and the two ſetts of *teeth*, were ſome rudiments deſign'd to form a *head*: but how dame *Nature* came thus to miſcarry in her *plaſtics*, whether from ſome *external violence* which might break the *Egg* after it came into the *womb*? or whether the *Egg* it ſelf at firſt was imperfect or ſubventaneous, out of which *Nature* being unable to form a perfect *Fætus*, made the beſt of what the matter could afford? as the learned Dr. *Tyſon* more probably thinks, who has written more at large of it [g]; I ſhall not determin, but leave the *Reader* freely to uſe his owne judgment.

10. Nor has it been uſual only amongſt the *Natural Hiſtorians* to tranſmit to poſterity ſuch *imperfect births* as theſe; but the moſt perfect ones too, when they have proved *extraordinary*: whence it is that the birth-places of *Princes*, and *Men* any way *famous*, either for *Arts*, or *Arms*; for *Piety*, or *Munificence*; have been conſtantly noted: and if by chance ſo neglected that they have become *dubious*; what contention has there been between *Citys* and *Countries* for the honor of the *birth* of a *famous Man*? Thus no leſs than *ſeven Cities* ſtrove for the birth of *Homer*; and thus *Middleſex* and *Oxfordſhire* conteſt the birth of *Chaucer* our famous Engliſh *Poet* [h]; and here in *Oxfordſhire Ewelm* and *Wood-ſtock* both pretend to him. To prevent ſuch altercations, *Cardinal Poole* Arch-Biſhop of *Canterbury*; and *William Giffard* (of the family of *Chillington*) Arch-Biſhop of *Rhemes*; *William Dudley* Biſhop of *Durham*: *Edmund Stafford* Biſhop of *Exeter*, a great *Benefactor* to *Exeter Colledge Oxon*; *Edmund Audley* Biſhop of *Rocheſter*, *Hereford*, and *Salesbury*; who built the *Chore* of St.

[g] *Philoſoph. Tranſact. Numb:* 150. [h] *See the Life of Chaucer by John Speght.*

Mary's

TAB. XXV.


ad pag:
1.
To ye right Worsp.ll
S.r JOHN FLOYER K.t
& D.r of PHYSICK
This 25.e Tab.
Representing a very Extra-
ordinary birth that
happend in this County
with all due respect
is humbly offered
by R. P. LL. D.
S. sculp.

Mary's Church in *Oxford*; all Nobly born and great *Prelates*: are already recorded to have been born in this *County* [i].

11. To whom let me add the moſt Reverend Father in God Dr. *Gilbert Sheldon* late Lord Arch-Biſhop of *Canterbury*, the moſt munificent *Founder* of the *Theater* in *Oxford*, who was born at *Stanton* in this *County*, where goeing to viſit the houſe of his *Nativity*, in the very room where he was ſaid to have drawn his firſt breath, I found theſe *Jambicks*.

Sheldonus *ille* præſulum *primus Pater*,
Hos *inter ortus aſpicit lucem* Lares,
O ter beatam Stantonis *villæ caſam*!
Cui cuncta poſſunt invidere Marmora.

Which it ſeems were left there by the right Reverend Father in God Dr *John Hacket* Ld. Bp. of *Coventry* and *Lichfield*, who out of his extraordinary devotion to this great *Prelat*, had purpoſely made a journey thither not many years before, to viſit the *place* of his *birth*, where after he had given God thanks for the great bleſſings he had afforded the world in that place, he ſate him down and wrot thoſe *verſes*.

12. Nor has it only furniſh't the Church with *Prelates*, but the Court with *Lawyers*; the famous *Thomas Littleton* Author of the *Tenures*; and *Edmund Dudley* father to *John* Duke of *Northumberland*, one of the *Judges*, of his time, being both preſumed to be born in this *County* [k]: as *William* de *Shareſhull* Lord cheif *Baron*, and cheif *Juſtice* of the Common pleas, *temp.* E. 3; S^r. *Tho. Bromley* Lord cheif Juſtice and Lord Chancellor of *England temp.* Eliz. and S^r. *Gilbert Gerard Maſter* of the *Rolls* more certainly were. The *Camp* too has been ſupplyed out of this *County* with many eminent *Souldiers*; ſuch as *Ralph* E. of *Stafford*, and S^r. *James Audley*; two of the firſt Knights Companions of the moſt Noble *Order* of the *Garter*, who in all probability were born in this *County*: as S. *Hugh Wrotteſley* another of the firſt Knights of the ſame *Order* moſt certainly was [l]. We may well too preſume that *Hugh Kilpeck* Lord of the goodly *Manor* of *Norbury* as M^r. *Erdeſwick* calls it, and upon account of his tenure of ſome other lands, the Kings *Champion* at the *Coronation*, (from whom it deſcended to the *Marmions* and *Dymocks*) was a good Soldier, and born in this County [m].

13. *John Bromley* Eſq; lineally deſcended from S^r. *Walter*

[i] *See Godwin de præſulibus in their reſpective Dioceſſes.* [k] *See Fullers Worthies in Staffordſh.* [l] *The Inſtitutions Laws and Ceremonies of the moſt noble Order of the Garter by E. Aſhmole Sect. 3. chap. 26.* [m] *Erdeſwicks view of Staffordſhire M.S in Norbury.*

Bromley of *Bromley* (the now ſeat of the Lord *Gerard*) in Com. *Stafford* K^t. *temp. R. Johan.* who retook the *Standard* of *Guyen* 4. *Hen.* 5. loſt to the French in a fierce charge on that wing which *Hugh Stafford* Lord *Bourchier* (his near *Kinſman*) then commanded, for which eminent ſervice he had not only the dignity of *Knight-hood* conferr'd on him, but many *lands* and *offices* in thoſe parts, and the ſaid *Standard* of *Guyen* given him for the *Creſt* of his *Armes*: which is born to this day by his lineal Deſcendant *William Bromley* of *Baginton* in *Com. Warw.* Eſq; truely heir of the *worth*, as well as *Eſtate* of his *Anceſtors* [n]. This valiant S^r. *John Bromley* was certainly (I ſay) born in this *County*. And ſo 'tis like too was *John* Duke of *Northumberland* who may be reckon'd a good *Captain* having frequently given proof of his abilities this way, and with good ſucceſs in all, ſaving his laſt *Enterpriſe* for the *Crown*, after the untimely death of King *Edward* the ſixth.

14. To theſe M^r. *Erdeſwick* adds *Ralph* and *Nicholas* ſons of *John Bagnall* born at *New Caſtle* under *Lyme* in this *County*, who raiſed again their ſunk ancient *Family* (once ſeated at the *village* of their own name in this *County*) by their valour only, for which they were both graced with the *Order* of *Knight-hood*, one at *Muſſleborough* in *Scotland*; the other in *Ireland* [o]. To whom give me leave to ſubjoyn Coll. *John Lane* of *Bentley* Eſq; (of whom at large hereafter) and Collonel *William Carlis*, born at *Bromhall* in this County, who for his approved *valour* under his late Majeſty at *Worceſter*, and fidelity to him in his diſtreſs after, upon whoſe lap he reſted in the *Royal Oke*; had his name changed to *Carlos* (which is *Charles* in *Spaniſh*) and a moſt ſuitable and honorable coat of *Armes* granted him by *Letters Patents* under the great *Seal* of *England*, *in perpetuam rei memoriam. viz.* in a field *Or* on an Oke *proper* a Feſs *Gu.* charged with 3 regal Crowns of the *ſecond*, by the name of *Carlos*. And for his *Creſt*, a *Civic Crown* or Oken garland, with a *Sword* and *Scepter* croſſed through it *Saltir-wiſe*. And for *Sea-Captains* (though an inland *County*) it has produced ſome very eminent; witneſs S^r. *Richard Leveſon* Vice-Admiral of *England*; and S^r. *Edward Spragg* one of the Rere-Admirals in our days, who as I am credibly inform'd, was born in this *County*. The Family of the *Minors*'s of *Hollingbury-Hall* in the pariſh of *Uttoxater* ſeems alſo to have been peculiarly addicted to the *Sea*; whereof one *William Minors* is ſaid to have ſailed to the *Eaſt-Indies* eleven times: whither he has been followed by Captain *Richard Minors*

[n] *Dugdales Antiquities of Warwickſh. illuſtrated p.* 153. [o] *Mr. Sampſon Erdeſwick's view of Staffordſh. M. S. in Bagenhall.*

the

the preſent *Proprietor* of that *Seat*: who has not only ſignalized himſelf in our *Engagements* at *Sea* againſt the *Dutch*, but at *land* too, againſt the *Rebells* (more particularly at *Colcheſter*) in the late *Civil* Warrs.

15. It has alſo obliged the World with as many learned *Writers* (for a *County* ſo little provided for with *Univerſities* as this is) as can reaſonably be expected: whereof the ancienteſt, are *John Stafford* a *Franciſcan Friar*, both a *Philoſopher* and *Divine*, but cheifly a *Hiſtorian*, which he ſhewed in writing a Latin Hiſtory, *de illuſtrium Virorum rebus geſtis*, to the time wherein he flouriſht, which was about the year 1380 [p]. *Thomas Aſheburn* alſo born in *Stafford*, and bred in the Univerſity of *Oxford*, where he was D[r]. of the *chair*: a great oppoſer of *Wicliff's* doctrin, againſt which he not only preached and wrot many *books*, but cauſed a *Convocation* to be call'd at *London An.* 1382. wherein it was ſolemnly condemned *. Which yet was mantained notwithſtanding by his contemporary and Country-man *Peter Pateſhull* born I ſuppoſe at the *Town* of his own name in this *County*, but bred alſo at *Oxford*, where he proceeded D[r]. and was ſometimes *Profeſſor* of Divinity; a man of a ſharp wit, an acute diſputant, and an eloquent preacher. He wrot many things againſt the *Monks* and *Friars* of his time, particularly the *Auguſtins*, by whom he was perſecuted accordingly: yet was made *Chaplin* at the ſame time (if we may beleive *Bale*) to Pope *Urban* the 6. by the procurement of *Walter Dyſs* an Engliſh *Carmelite*, his *Legat* here †. *William* de *Lichfield* D[r]. of *Divinity*, *Rector* of *Allhallows* the great in *London*, wrot many books in his own *faculty* both in *proſe* and *verſe*, whereof *Pitſeus* has given us a *Catalogue* [q], and was ſo great a *Preacher* that as M[r]. *Stow* ſays, he left behind him when he dyed *An.* 1447 no leſs than 3083 *Sermons* of his own writing, which would have been accounted a prodigious number in this *preaching* age, but was much more ſo in that [r].

16. *Robert Whittington* alſo born at *Lichfield*, was a great *Grammarian*, *Poet* laureat of *Oxford*, and *Protovates Angliæ*, as he ſtiles himſelf in the title-page of his *Grammar* printed at *London* by *Wynkyn de Worde An.* 1517. He wrot many other books of *Schole-Learning* the *Titles* whereof may be ſeen in *Pitſeus* [s]. *Henry Stafford* Son of *Edward* Duke of *Buckingham* attainted and beheaded 12. *Hen.* 8. 1521. was likewiſe born in this *County*, *Vir in melioribus quibuſque diſciplinis inſigniter eruditus*, ſays *Pitſeus* of him [t], who to avoid the fate of his *Anceſtors*,

[p] *Joh. Pitſeus de Illuſtrib. Angl. Script. in Anno citato.* * *Ibidem in Anno citato.* † *Joh. Balei de Scriptoribus Britanniæ Cent. Sept.* [q] *Joh. Pitſei Illuſtr. Angl. Script. Append. Cent.* 2. [r] *Stows ſurvey of London in Down gate ward.* [s] *Joh. Pitſei Illuſtr. Angl. Script. in An.* 1530. [t] *Idem. in An.* 1558.

was contented with the *Barony* of *Stafford* only, and leaving all thoughts of *State-affaires*, applyed himſelf to his *ſtudies*; and wrot many things in *Latin* politely enough both in *verſe* and *proſe*. *John Robyns*, firſt Fellow of *All-Soules* Coll. after *Canon* of *Ch. Ch. Oxon* and *Prebend* of *Windſor*, the greateſt *Mathematician* of his time, alſo had his *Nativity* here[v]; he wrot a book *de portentoſis Cometis*[w], and being much addicted to the ſtudy of *Aſtrology*, left many books on that ſubject, whereof there are ſeveral *MSS.* in the *Bodleyan Library* in the *Univerſity* of *Oxford*[x]. The famous *Thomas Allen* of *Glocester Hall*, a great *Antiquary*, *Philoſopher*, and *Mathematician*, was likewiſe born at *Bucknall* in this *County*, being deſcended of one *Alanus de Buckenhall temp. Edw.* 2. according to the opinion of Mr. *Sampſon Erdeſwick*[y]. Who was alſo born at *Sandon* in this County, *venerandæ Antiquitatis cultor maximus*, ſays Mr. *Camden* of him[z], which he has fully made good in the MS. *view* of this *County*, by him written.

17. Of later years, *Robert Waring* M. A. and *Student* of *Chriſt-Church*, was born at *Lea* houſe near *Wolverhampton*, a great *Poet*, *Orator*, and *Hiſtorian*, of the latter whereof he was publick *Profeſſor* at *Oxon*. He publiſh't ſeveral tracts, of which there is an accouut in the *Hiſtory* and *Antiquities* of the Univerſity[a]. *Robert Burton* alſo of *Ch. Ch. Oxon*, commonly otherwiſe call'd *Democritus junior*, the learned *Author* of the *Anatomy* of *Melancholy*, is alſo generally believed by the *Inhabitants* thereabout, to be born at *Fald* in this *County*, where I was ſhewn the very *houſe* (as they ſaid) of his *Nativity*. And *William Burton* in the ſelvedg of his *Picture* before his deſcription of *Leiceſterſhire*, ownes himſelf of *Fald* in this *County*. Though Mr. *Anth. à Wood* in the *Antiquities* of the *Univerſity* ſays they were both born at *Lindly* in the *County* of *Leiceſter*[b]. *Edward Chetwynd* Dr. of *Divinity* of *Exeter* Coll. of the ancient Family of *Ingeſtre* in this *County*, is likewiſe placed here, he was Chaplin to Queen *Ann*, and Dean of *Briſtol*, a great preacher, and publiſh't many Sermons beſide other *Tracts*[c]. To theſe add, Sr. *Charles Wolſely* Baronet now living, a cordial *Encourager* of this *work*, who though a *lay-Man*, has written many things in *Divinity*. And the learned and ingenious *Charles Cotton* of *Beresford* Eſq; who beſide ſeveral *Tranſlations*, has publiſh't divers other *curious pieces*, ſo well known to all ingenious perſons, that they need not be named.

18. Laſtly, the Worſhipfull *Elias Aſhmole* Eſq; of *Braſen-Noſe* Coll. *Oxon*, was born at *Lichfield* in this *County*, who for his

[v] *Anth. a Wood Hiſt. & Antiq. Univerſ. Oxon. Lib.* 2. *in Coll. Omn. Anim.* [w] *Joh. Pitſei illuſtr. Angl. Script. Append. Cent.* 3. [x] *MS. Fol. inter Cod. Digby numb.* 143. [y] *Mr. Sampſ. Erdeſwick's view of Staffordſh. in Bucknall.* [z] *Mr Camden in Com. Staff.* [a] *Anth. a Wood Hiſt. & Antiq. Univerſ. Oxon. Lib.* 2. *in Coll. Ch. Ch.* [b] *Ibid.* [c] *Ibid in Coll. Exon.*

general

general skill in all the politer ſorts of *Learning*, ſuch as *Heraldry*, *Antiquities*, *Chymiſtry*, *Aſtrology*, *Natural Philoſophy*, &c. was made firſt *Windſor* Herald, and had the ſuperviſing and ordering the *King's* Cabinet of *Coynes*, and made Catalogues of thoſe in the *Univerſity* of *Oxon.* Which *Univerſity* upon account of his extraordinary merit, ſent him a *Diploma* for his *Dr*s degree in the *Faculty* of *Phyſick*, *ex mero motu*, without his knowledg or ſeeking. He was alſo honoured in the *Inns* of *Court* with the title and degree of *Barriſter* at *Law.* Laſtly our late dread Soveraigne K. *Charles* the *Second* being conſcious of his great knowledg, induſtry, and fidelity, made him *Controller* of all the *Exciſe* in *England* and *Wales.* He hath obliged the *learned world* with many curious *books*, and lately the *Univerſity* of *Oxford* with the beſt *Hiſtory* of *Nature*, *Arts*, and *Antiquities*, to be ſeen any where in the *world*; not in *print*, or *Sculpture*, but in a generous donation of the *real things* themſelves; wherewith they have furniſh't the new *Muſæum* lately there erected, and gratefully ſtiled it (as a perpetual memorial of ſo *noble* a *benefaction*) the *Muſæum Aſhmoleanum.*

19. And as the *Naturaliſts* took care to tranſmit to *Poſterity* the birth-places of *Men* eminent for any ſort of *Virtue*, ſo likewiſe they did too of all *numerous Off-ſprings*; ſuch as that of one *Dilk* the *foot-poſt* of *Lichfield*, whoſe wife was ſo prolific that ſhe brought him 5 children within the year, and theſe not at one, but two regular births, without any ſuch *ſuperfetations* as thoſe mention'd above in the former *Chapter*[d]; or by *Pliny* in his *Examples* of *numerous births*[e]. *Raro noſtro ſeculo* Trimelli *perfecti ſunt aut Vitales*, ſays *Thomas Bartholin.* i. e. that it ſeldom falls out that three children are born together either perfect or living*; and yet this happen'd too at *Barton* in this *County*, there being one *Taylor* that lived in a little *Cottage* near the place where the *Chappel* now ſtands that had three *Sons* at a birth, which being preſented as a rarity to King *Hen.* the 7th as he came that way (perhaps to hunt in *Needwood*) he order'd that care ſhould be taken of them, ſo as to be put to *Schole*, &c. who all lived to be men, and as the tradition goes all came to be *Doctors*, and to good perferment: which 'tis like is true enough of the *youngeſt*, but 'tis certain the *eldeſt* did, as appears by ſeveral *inſcriptions* both within and without the *Chappel*, which he gratefully founded there, in the place of their *Nativity*; of which more hereafter.

20. There are alſo in this *County* ſome remarkable *cuſtoms* relating to *births*, that muſt not be omitted: whereof that of *Borow-*

[d] *Vid. Chap.* 7. §. 62. [e] *C. Plinii* 2di. *Nat. Hiſt. Lib.* 7. *cap.* 11. * *Tho. Bartholin. Hiſt. Cent.* 4. *Hiſt.* 83.

Engliſh at *Lapely* and *Alrewas* may paſs for one, which is a cuſtomary deſcent of *Lands* to the *youngeſt* Son or Brother, before the *elder*; and this in ſome places is indefinite, but here at *Alrewas* of the *Copy-hold-lands* only, not the *Fee-Simple*. That the *youngeſt* Son or Brother ſhould thus inherite *Lands* of any ſort, before the *elder*, may ſeem indeed to ſome not a little *unnatural*, but the famous *Littleton* renders us this reaſon why in ſome places they enjoy this *privilege*, for that in *Law* they are preſumed the leaſt able to ſhift for themſelves. Upon which account in *Kent* where the *youngeſt* ſometimes enjoys the benefit of *Gavelkind*, though not the whole inheritance; they have the privilege of the *Aſtre*, or herth for fire, in the *Manſion* houſe, in their *diviſion*; becauſe the *youngeſt* being the tendereſt have the greateſt reaſon to be kept warm at home[f].

21. Which are *reaſons* that appear plauſible enough, but I gueſs the more ſubſtantial *cauſe* of this *cuſtom* may rather be, that the places where now *Borow-Engliſh* obtains, were anciently lyable to the ſame ungodly *cuſtom* granted to the *Lords* of *Manors* in *Scotland* by King *Evenus* or *Eugenius*, whereby they had the *privilege* of enjoying the firſt nights lodging with their *Tenants* brides[g], ſo that the *eldeſt Son* being preſumed to be the *Lords*, they uſually ſetled their *lands* (and not without reaſon) upon the *youngeſt Son* whome they thought their owne; which being practiſed a long time, grew at length to a *cuſtom*. Now that this *cuſtom* obtained as well in *England* as *Scotland*, we may rationally conclude from the *Marcheta mulierum* (which King *Malcolm* orderd the *Tenants* to give their *Lords* in liew of it when he took it away[h].) that was anciently paid *here* as well as *there*: for which we have the expreſs teſtimony of *Bracton*. *Tranavit* (ſays he) *totam Angliam Marcheti hujus pecuniarii conſuetudo in mancipiorum filiabus maritandis*[i]. i. e. that this *cuſtom* was ſpread all over the *Nation*, &c.

22. Whereof I have ſeen a particular *Record* of one *Maynard* of *Berk-ſhire*, who held his *lands* by this *tenure* of the *Abbot* of *Abbington*, in theſe words. Willielmus Maynard *qui tenuit terras in* Heurſt, *cognoſcit ſe eſſe Villanum* Abbatis *de* Abbendon; *& tenere de eo in* Villenagio, *& per villanas conſuetudines*, viz, *per ſervitium* 18d. *per annum*, *& dandi Maritagium &* Marchetum *pro filia & ſorore ſua ad voluntatem ipſius* Abbatis, &c[k]. Nor did it only prevaile in *England* and *Scotland*, but as I have heard in the *Iſle* of *Guernſey*; and in the *Kingdom* of *Ireland* too; where, as I am told by the Worſhipfull Colonel *Edward Vernon*

[f] *Le Aſtre demorra al pune, on al punee. Lambard's Uſages and Cuſtoms of Kent. p.* 574. [g] *Hect. Boetii Hiſt. Scot. Lib.* 3. *cap.* 12. [h] *Geo. Buchanani Rer. Scot. Hiſt. Lib.* 7, *Fol.* 64. [i] *Bracton de Legib. & Conſuetud. Angl. Lib.* 2. *tit.* 1. *cap.* 8. *num.* 2. [k] *Placita de Banco in die Paſc.* 34. *Hen.* 3. *Rot.* 20. *Berkſ.*

(deputy

(deputy high *Steward* of the *Honor* of *Tutbury*, and deputy *Lieutenant* of the *Forreſt* of *Needwood*) it is call'd *Lohempy*.

23. At *Terley Caſtle* in this *County*, the *Lordſhip* whereof belongs to the right Honorable the Lord *Gerard* of *Bromley*, S^r. *Charles Skrymſher* K^t. and *Richard Church* Eſq; the *Lords* enjoy another odd *cuſtom*, or privilege of *Lotherwits* or *Lyerwits* at this day; that is, the liberty of taking a *compenſation* or *amercement* for *baſtards* got or born within the *Lordſhip*, ſo called from the Saxon *Leger* or *Lógher* a bed, and *wit* a penalty; whence *Fleta* expounds the word *Lierwit* to import as much as *mulcta Adulteriorum*[1]. Which anciently as the *books* unanimouſly inform us, extended only to ſuch as did defile a *bond-woman* within the *Manor* without licence. But the *Charter of* this *Manor* it ſeems extends further, for here the *delinquent*, oath being made that the *baſtard* was begot within the *Manor*, and paying ten ſhillings to the *Lords*, not only avoids the cogniſance of the *Biſhop* and all *Eccleſiaſtical Courts*, and *diſcovery* of the *Father*: but alſo if a *baſtard child* be brought hither from without the *Lordſhip*, paying 1^lb—19^s—11^d.—ob. to the *Lords*, they ſhall have no cogniſance of it neither. Nay ſo great a *privilege* had a certain *Oak* in *Knoll-wood*, 3 miles South of the *Caſtle* but within the *Lordſh.* in this reſpect, as S^r. *Charles Skrymſher* told me, to whom the wood belongs, that in caſe *oath* were made that the *baſtard* was begot within the *umbrage* or reach of its boughs, neither the *Biſhop*, or *Lords* of the *Manor* themſelves could take any cogniſance of it.

24. After the *births* of *Men* and *Women*, their *Chriſtenings* uſually follow; wherein it is remarkable that about *New-Caſtle* and in the *Moorelands*, the mens names are moſt commonly *Ralph* or *Randal*; and about *Stafford* and the more *Southerly* parts, the name of *Walter* is as common; theſe two *names* prevailing much in number above any other thereabout: occaſion'd (I ſuppoſe) by the great *Eſtates* and *Authority* of the *Earls* of *Cheſter* and *Eſſex*, each in their reſpective *Quarters*: *Ranulph* Earl of *Cheſter's* name ſtill prevailing in the *North*; and *Walter* Earl of *Eſſex's* (who lived after him at *Chartley*) having ſince carryed it in the *South*. It is alſo worthy notice that here are ſome *Familys* that have conſtantly chriſtened their *eldeſt Sons* of the ſame *Name* for many generations; thus the *Parkers* of *Audley* have been all *Richards* for many deſcents; and the *Family* of *Littleton* of *Pillaton* are ſo nice in this point, that unleſs the *eldeſt Son* be named *Edward* they think it cannot live to enjoy the *Eſtate*: up-

[1] *Fleta. Lib.* 1. *cap.* 47.

on

on which account they have been all S. *Edwards* ever ſince *Hen.* 6th. time, the preſent ſurvivor being the ninth of that name. Which *cuſtom* of chriſtening the *Son* conſtantly of the *Fathers* name, yet Mr. *Erdeſwick* does not approve, upon conſideration that if a controverſy ſhould arile, wherein a man ſhould be forced to prove his *deſcent*, this *Identity* of *Names* will ſo perplex it, that it will be very difficult to diſtinguiſh the *Donor* from the *Donee*, &c. whereas when the *Names* are often, or but alternately changed (as 'tis common in ſome *familys*) the *deſcent* thereby is ſo obvious, that no man need fear any hazard in pleading it[m].

25. Thus having done with the births of *infants*, &c. I proceed next to the moſt *remarkable paſſages* that have happen'd in *childhood* or *youth*; amongſt which the impoſture of *William* the Son of *Thomas Perry* of *Bilſon* or *Bilſton* Yeoman, a boy not above 13 years of age (but far exceeding it in wit and ſubtilty) muſt not be forgotten: who in *An.* 1620. 18. *Jac.* being unwilling to goe to *Schole*, and inſtructed by an *old Man* call'd *Thomas* that carryed a *cradle* of glaſſes at his back, in a *cloſe* where none could ſee them, but ſix times; yet proved ſo towardly in theſe few *tryals*, that he learned preſently to *groun*, *pant*, and *mourn*; next to roll and caſt up his *eyes*, that nothing but the *whites* ſhould appear; to wreſt and turn his *neck* and *head* both towards his *back*, and then to *gape* hideouſly with his *mouth*, to grind his *teeth*, &c. and after that to convey crooked *pins*, *raggs*, &c. into his *mouth* ſo that he might ſeem to *vomit* them up; he was inſtructed alſo that though people ſhould put him to pain by *pricking*, *pinching* or *whipping*, yet that he muſt indure all patiently; laſtly the *old man* taught him to ſay he was *bewitched*, and adviſed him to accuſe ſome body (whom he had heard to be accounted a *witch*) to have bewitched him; and that whenever he heard the 1 *verſe* of the 1. *Chap.* of S. *Johns* Goſpel repeated, he ſhould fall into theſe *fits*: all which he was contented to doe, and undergoe, to avoid going to *Schole*, and to move *compaſſion* in the *beholders* who brought him many good things out of *pity* when they reſorted to him[n]. To which he added of his own, as occaſion required, a *willfull abſtinence*; a trick of rolling up his *tongue*, and ſo placing it in his *throat*, that it appear'd hard and ſwollen; and mixing *Ink* with his *Urin*, to make people beleive it came ſo immediately from him[o].

26. In the practiſe of which *inſtructions* of the *old Man*, and *contrivances* of his own, he grew in a little time ſo cunning and

[m] *Mr. Samp. Erdeſwick's M. S. view of Staffordſhire. in Burweſton.* [n] *Boy of Bilſon, or a true diſcovery, &c. printed at Lond. for Will. Barret.* 1622. [o] *Wilſons Hiſt. of the life and Reign of K. James the firſt in An.* 1617.

expert,

expert, that moſt people (his own *Parents* not excepted, who were honeſt folks of ſufficient ability, and altogether ignorant of the *practiſes* of their *child*) beleived him indeed *bewitched*: for in his *fits* he appear'd both *deaf* and *blind*, writhing his *mouth* aſide, continually *panting* and *groaning*, and although often *pinched*, *prick't* with *needles*, and once *whiped* with a *rod*, beſide other like *extremities*; yet could not be perceived either by *ſhrinking* or *ſhreiking* to bewray the leſt paſſion of *feeling*. Out of his *fits* he took (as was thought) no ſuſtenance he could digeſt, but together with it did void and caſt out of his mouth *raggs*, *thred*, *ſtraw*, *crooked pins*, &c. His *belly* by his continual and *willfull abſtinence*, was almoſt as flat as his back; his *throat* was *ſwoln* and hard, his *tongue* ſtiff and rolled up toward the *roof* of his *mouth*, ſo that he ſeemed always *dumb*, ſaving that he would ſpeak once in a fortnight or 3 weaks, and that in but very few words. Of all which he accuſed one *Joan Cock* or *Coxe* a poore old neighboring woman that he ſaid had *bewitched*, or cauſed him thus to be *poſſeſſed*; whom he would cunningly *diſcern*, and then fall into a *fit*, whenever ſhe was brought near the place where he was, though never ſo *ſecretly*, as was once tryed before the *Biſhops Chancellor* at *Lichfield*[p]; again before the *Grand Jury*[q]; and a third time before the whole *Bench*, at the *Aſſizes* at *Stafford*[r].

27. Where *Aug.* the 10. *An.* 1620. She was tryed for a *Witch*, before the right Worſhipfull S^r^. *Peter Warburton*, and S^r^. *John Davis* Knights, then his Majeſties *Juſtices* of *Aſſize* for this *County*, before whom were brought ſome ſlender *circumſtances* vulgarly eſteemed *ſtrong proofs* of *Witchcraft*, but theſe appearing to the *Judges* but fantaſtical deluſions, the *woman* was freed by the *Inqueſt*, and the care, and (if it might be) the cure of the *boy* committed by the *Judges* to the right Reverend Father in God D^r^. *Thomas Morton* Lord Biſhop of the *Diocеſs* then and there preſent. Who after a *Months* obſervation of his *Actions* and *temper* at *Eccleſhall Caſtle*, not only ſuſpected, from the eaſy and equal beating of his *pulſe* in his ſtrongeſt *fits*; his quiet *reſt* and *ſleep* commonly the whole *night*; his *clear complexion*, and *ſpitting* forth from him as naturally as any body in perfect health, which could not poſſibly be done with a *tongue* turned upwards as was pretended, &c. that he did but counterfiet: but evidently proved it from his falling into *fits* upon repetition of the 1. *verſe* of the 1. *Chap.* of S^t^. *Johns* Goſpel [*in the beginning was the word*, &c.] in the preſence of his *Father*, and an *Aunt* that came to ſee him in *Octob.* following[s].

[p] *Ibidem.* [q] *Boy of Bilſon, &c.* [r] *Wilſon's Hiſt. of the life and reign of K. James the firſt.* [s] *Boy of Bilſon, or a true diſcovery, &c.*

28. When, being out of his *Fit*, the *Biſhop* calling for a *Greek* Teſtament, ſaid to him; *Boy*, it is either thou or the *Divel* that abhorreſt thoſe words of the *Goſpel*: and if it be the *Divel*, he (being almoſt 6000 years ſtanding) knoweth and underſtandeth all *languages* in the world, ſo that he cannot but know when I receit the ſame *ſentence* out of the *Greek*. But if it be thy ſelf, then art thou a moſt execrable *wretch* who playeſt the *Divels* part, in loathing that portion of the *Goſpel* of *Chriſt*, which (above all other *Scriptures*) doth expreſs the admirable union of the *Godhead* and *Manhood* in one *Chriſt* and *Saviour*, which *union* is the cheif pillar of *mans* Salvation. Wherefore look to thy ſelf, for now thou art to be put to thy *tryal*, and mark diligently whether it be the ſame *Scripture* which ſhall be read unto thee, at which thou doſt ſeem to be ſo much troubled and tormented. Then was read unto him the 12 *verſe* of the ſaid 1. *Chap.* of S^t. *Johns* Goſpel [Ὅσοι δὲ ἔλαβον αὐτὸν, ἔδωκεν, &c.] which he ſuppoſing to be the *firſt verſe*, did accordingly as he was wont fall into one of his *Agony's*. Which being quickly over, next was read unto him in the ſame *language* the *firſt verſe* being indeed the aforeſaid *Text* [Ἐν ἀρχῇ ἦν ὁ λόγος, &c.] yet he ſuſpecting it not the ſame *Text*, was not troubled at it[t].

29. By this means was his *fraud* ſo far diſcover'd, that he was not a little confounded; however ſtareing ſtill with his *Eyes*, and caſting his *head* on both ſides the *bed* whereon he lay, that he might cover his diſimulation the better, he told the *company* he was troubled at the ſight of two *Mice:* and that he might be freed from further *tryal* and ſent home to his *Father*, he complained of extreme *Sickneſs*, and by writing, as well as he could, did ſignify that he had a great pain in his *belly*, and the morning following making *water* in a *Urinal*, it was found as *black* as *Ink*, for there was ſome that *wrot* very legibly with it. Two days after he ſeemed to make *water* of the ſame *colour* again, which that he might the more craftily diſſemble, he vehemently *groaned* at the making of it, whereupon one comeing into the *room* to him, the *boy* ſhewed him his manner of makeing water, whereof a little remain came then from him of the ſame *tincture*, which he had purpoſely reſerved within his *præputium*, to make it ſeem as if it came ſo immediatly from him[u].

30. To find out this too, the *Biſhop* ordered a truſty *Servant* to watch him through a *hole* that opened into the *chamber* towards the *bed*, which the *boy* knew not of; by whoſe diligent *obſervation*, the third day following he was eſpyed to take out an *Ink-horn*

[t] *Ibidem.* [u] *Ibidem.*

which

which he had hid in the *ſtraw* or *Mat* of his *bed*, and to make water in the *Urinal* through a piece of the *Cotton* in his *hand*, nimbly conveying the *Ink-horn* into the ſame place again: whereof as ſoon as the *Man* had acquainted the *Biſhop*, he came to him preſently and aſkt him how he did? who according to his uſuall manner pointed to his *water* looking ghaſtly at it; then the *Biſhop* who now meant to deal roundly with him, told him plainly that he knew he had *Ink* in his *bed-ſtraw*, with which he uſed to *black* his *water*, and calling in his *Man* took the *Ink-horn* out of the place where he had hid it, the *Man* juſtifying at the ſame time that he ſaw him make water through the *Cotton*. Which (with the *Biſhops* threatening to ſend him to the houſe of *Correction*) ſtruck him with ſuch a terrour that he roſe from his bed, fell upon his knees, and burſt out into plentifull tears, *confeſſing* all to his own *ſhame* and *Gods* glory, not only what the *old Man* had taught him, but alſo what he had contrived of himſelf[w].

31. Amongſt other things being aſkt, why he accuſed the poor *old woman* of *Witchcraft*? he anſwered that the *old Man* told him he muſt lay the cauſe of his being poſſeſt upon ſome *old woman*, and ſhe being knowen unto him, and of a *ſcolding humor*, he fixt it on her; and confeſt that he was once minded to have made his *picture* in *clay*, and to have conveyed it into her *houſe*, for the better proof of her *bewitching* him[x]. Then the *Biſhop* aſking him how he came to be ſo ſenſible of the *womans* being near him, before ſhe appeared in the *room* both at her *examination* and *arraignment*, his back being toward her? for the firſt at *Lichfield*, he ſaid, he heard ſome about him whiſper [*ſhe is here*] which made him cry out, *ſhe comes, ſhe comes*: and for the other at *Stafford*, he ſaid he heard the people *remove*, and her chains *clink* as ſhe came, which gave him the *ſigne*. Laſtly being aſkt how he made his *throat* ſwell? he ſhewed it was by thruſting his *tongue* (which was very long) down his *throat*[y]. After which ſincere *confeſſion* and *acknowledgment*, he continued at *Eccleſhall Caſtle*, till he was recover'd of his *weakneſs*, and was finally brought again to the following *Summer Aſſize* held at *Stafford Jul.* 26. *An.* 1621. before S^r. *Peter Warburton* and S^r. *Humphry Winch* Knights, his Majeſties *Juſtices* of *Aſſize*, and the face of the whole *Country* there aſſembled: where he firſt craved pardon of *almighty God*; then deſired the *poore woman* there alſo preſent to forgive him; and laſtly requeſted the whole *Country*, whom he had ſo notoriouſly and wickedly ſcandalized, to admit of that

[w] *Wilſon's Hiſt. of the life and reign of K. James the firſt, &c.* [x] *Boy of Bilſon, &c.* [y] *Wilſon's Hiſt. of K. James the firſt, &c.*

his ſo *hearty confeſſion*, for ſome meaſure of *ſatisfaction*[z]. After which as Mr. *Wilſon* ſays he was bound *Apprentice* by the *Biſhop*, and proved a very honeſt Man[a].

32. The ſtrange facility and readineſs wherewith this *boy* of *Bilſon* in a little time could perſonate all the *geſtures* of one *bewitch't* or *poſſeſt*, puts me in mind with what impulſes or peculiarities of temper ſome are inclined (eſpecially in their *youth*) to imitate *motions* and *ſounds*: for which *Doterel*-quality, I remember a young *Scholar* of *Magd. Coll. Oxon.* ſo very excellent, that he would perſonat a *Changeling*; counterfiet the *barking* of a *Dogg*; the grunting and ſqueeking of a *Sow* and *piggs*; and divers other *geſtures* and *noiſes* ſo very indiſtinguiſhably, that a *Stranger*, or any other perſon not privy to it, could not but think them the very ſame. So in *Darby-ſhire* I was ſhewn a *Youth* that could moſt exactly imitate a *Hunters* horn with his *voice* only. And I ſaw one *William Creſwell* an Apprentice to *Anthony Banniſter* of *Rugeley* in this *County*, who could *whiſtle* ſo artificially, that ſcarce any body out of ſight, could diſtinguiſh his notes from thoſe of a *Flagelet*. Which imitations being voluntary, at the pleaſure of the *Agent*, perhaps may ariſe only from the frequent repreſentations of the geſtures and ſounds their *Parents* or *Nurſes* accuſtomed them to, during their *infancy*, which may poſſibly have ſo much influence (at theſe years) in molding the texture of the *Brain* and *Spirits*, as to diſpoſe them to the imitation, of ſuch *motions* and *notes*, rather than others.

33. But when this *imitating quality* is ſo very ſtrong, that it becomes *involuntary*, as it is in *Donald Monro* of *Scrachbogie* in *Scotland*, who pulls of his hat, and puts it on; wipes his noſe; wrings his hands; ſtretches forth his armes; and imitates all other actions he ſees any man doe, though much againſt his will, with ſo much exactneſs and ſuch a natural and unaffected an *Air*, that no man can ſuſpect he does it with *deſigne*; and yet with ſo ſtrong an *impulſe* (as the Reverend and learned Dr. *Garden* informs us) that if his hands be held, he cannot forbeare preſſing to get himſelf free to doe the ſame thing. Nay ſo contrary to his mind does he *Ape* theſe motions, that to hide his *infirmity*, he caſts down his *Eyes* when he walks the *ſtreets*, and turns them away when in *company*, wherein too 'tis hard to make him ſtay, once he finds himſelf obſerved[b]. When I ſay this *imitating quality* is thus ſo very ſtrong, that it becomes *involuntary*, the impreſſions given by *parents* or *nurſes* ſeem not ſufficient to ac-

[z] *Boy of Bilſon, &c.* [a] *Wilſon's Hiſt. of K. James the firſt, &c.* [b] *Philoſoph. Tranſact. Numb.* 129.

count

count for it, it being more probably grounded in ſome peculiar *craſis* in the *Spirits*, or *diſtemper* in the *imagination*, nothing leſs being adequat to ſuch effects.

34. After thoſe of *Children* and *youths*, Method directs me next to conſider the *uncommon accidents* that have at any time attended more *adult* perſons; and firſt of ſuch as have befallen the *female Sex*, which according to the cuſtom of *England* has always the place: amongſt which I take it to be very extraordinary that I met with at *little-Worley* in the pariſh of *Cannock*, where I ſaw one *Mary Eagle* who could draw two quarts of milk from her breaſts *per diem*, beſide what her child ſuck't, whereof ſhe could have made (had there been vent for it) two pounds of *butter per* week, ever ſince ſhe was brought to bed, which was about five *Months* paſt, when I was there. She gave me ſome of the *butter*, which was made up freſh, without *Salt*, it needing none (as ſhe told me) to preſerve it, which ſhe ſold to ſome *Apothecaries* hereabout at a good rate, it being uſefull (as ſhe ſaid) in all ſorts of *ſwellings*, *Aches* of the *head*, ſore *Eyes*, &c. but I believe it was ſo made only at their directions, for I found *that* ſhe gave me, to grow rancid in a while, and to ſtink at laſt. *Borellus* in his obſervations tells us of much ſuch another woman, one *Mary Caron* a Taylors wife of *Boulogne*, who could afford milk enough every day for the nourſing two children, and to make *butter* beſide; which ſhe alſo did, at the earneſt requeſt of a certain *Apothecary*, who uſed it, not againſt *ſwellings*, &c. as here in *Staffordſhire*, but as a great *noſtrum* or *ſecret* againſt *Conſumptions*, for which he thought it the beſt *remedy* of any whatever[e].

35. Amongſt ſuch *accidents* as theſe, we may alſo reckon what befell one *Mary Foſter* of *Admaſton*, now the wife of *John Stone* of *Burton* upon *Trent*, who caſually falling into a well was ſo frighted with it, that for about a fortnight ſhe reſted but little, but at length fell into ſo ſound a ſleep that ſhe wakened not again in 14 days and nights. About two years after ſhe went to live at *Uttoxater*, where ſhe ſlept again (as I was inform'd) three days and nights more: but ſhe her ſelf told me it was but two nights and a day. Now though it may ſeem a little odd that ſuch dreadfull impreſſions which one would think at firſt ſight ſhould rather keep one *waking*, ſhould caſt a perſon into ſo profound a *ſleep*; yet upon further conſideration that nothing diſorders and tires the *Spirits* more than ſudden *frights* and *anxieties* of mind, me thinks it ſhould not ſeem any great wonder if to recruit themſelves again, they incline to *reſt*, and diſpoſe the perſon to

[e] *Petr. Borelli Hiſtor. & Obſerv. Medico-Phyſ. Cent.* 3. *Obſ.* 82.

ſleep a longer or ſhorter time, in proportion to the experience and diſturbance they have had.

36. Which in all probability was alſo the caſe of a little girle about 8 years old mention'd by *Dan. Ludovicus*, who being firſt beaten by a ſever *ſtepmother*, and then ſent *hungry* with a bever to her *Father* in the field who was a poor *herdſman*, and not forbearing to eat part of it; when ſhe ſaw it half gone, fearing more ſtripes, went no further on her way but turned aſide into the next grove or wood, where full of tears and ſobbs, ſhe layd her ſelf down covering her face on all ſides with leaves and moſs, and at laſt fell into ſo deep a ſleep, that ſhe waked not again in ſeven days: nor is it likely ſhe had then, had ſhe not been found by ſome *boys*, that went thither to ſet *ſnares* for *birds*, who diſcovered her to her *parents*, by whom being carryed to the next houſe as dead (without any *ſymptoms* of life beſide the ſoftneſs of her fleſh, and flexibility of her joynts) where *Ludovicus* by chance was in company with a friend: having firſt waſh't from her face a glutinous flegme mixt with the moſs and leaves that had cover'd it, with hot water; and cleared her mouth and noſtrills from a viſcid ſubſtance that had ſtopt them; he then gave her a ſpoonfull of *Spirit* of *Wine*, which ſeeming to paſs, upon giving her another ſhe began to *groan*, and after a third ſhe open'd her *Eyes*, and ſo came at length to her ſelf by degrees[d].

47. Yet theſe *Slept* not ſo long, but there are others in this *County* that have *faſted* as wonderfully; one *William Francis* of *Fiſherwick* being Melancholy-mad, having once willfully faſted 14 days together, notwithſtanding all means uſed to force him to eat. Which yet was nothing to what was alſo willfully done by one *John Scot* a *Scotchman*, who being caſt in a ſuit of Law, and knowing himſelf inſolvent, took *Sanctuary* in the Abbey of *Halirudhouſe*, where out of a deep diſcontent, he abſtained from all *meat* and *drink* 30 or 40 days together. Publick rumor bringing this abroad, the *King* himſelf reſolved to have it put to tryal, whereupon he was ſhut up in a private room in the *Caſtle* of *Edinburgh*, whereunto no man had acceſs, and had a little *bread* and *water* ſet by him, which he was found not to have taſted, in 32 days. This proof of his *abſtinence* being given, he was ſet at liberty, and went to *Rome*, where he gave the like proof of it to Pope *Clement* the *ſeventh*; at *Venice*; and in his return, at *London*; where inveighing againſt *Hen.* 8. for his divorceing Q. *Catharin*, and his defection from the *See* of *Rome*, he was thruſt into priſon, where he continued alſo faſting for 50 days together[e].

[d] *Vid. Miſcellanea Curioſ. Medico-Phyſ. German An.* 8. *Obſerv.* 68. [e] *Joh. Spotſwood's Hiſt. of the Church of Scotland. Book* 2. *in An.* 1539.

38. Nor

38. Nor comes the *femal Sex* much behind in ſuch extraordinary *faſting*, for I find in the *Records* of the *Tower* of *London*, that in the 31. of *Edw.* 3, there is a pardon of execution of *Judgment* granted to one *Cicely* de *Rygeway*, though indicted and condemned for killing her husband, for that ſhe had *faſted* for forty days together *in arcta priſona*, without meat or drink, which, becauſe a very remarkable inſtance, I care not if I gratify the *Reader*, with a Copy of the *Record*.

Ex Rotul. Paten. *de Anno regni Regis* Edvardi *tertii* 31°. *parte* 1ª. *Membr.* 11ª.

REX *omnibus* Ballivis *& fidelibus ſuis ad quos, &c. Salutem. Sciatis quod cum* Cecilia *quæ fuit uxor* Johannis *de* Rygeway *nuper indictata de morte ipſius* Johannis *viri ſui, & de morte illa coram dilect. & fidelibus noſtris* Henrico Groye *& Sociis ſuis* Juſtic. *noſtris ad* Gaolam *noſtram* Notyngh. *deliberand. aſſign. allocuta, pro eo quod ſe tenuit mutam ad pœnam ſuam extitit adjudicata ut dicitur, in qua ſine cibo & potu in* arcta priſona *per quadraginta dies vitam ſuſtinuit via miraculi, & quaſi contra naturam humanam ſicut ex teſtimono accepimus fide digno.* Nos *ea de cauſa pietate moti ad laudem* Dei *& glorioſæ virginis* Mariæ *matris ſuæ unde dictum miraculum proceſſit ut creditur, de gratia noſtra ſpeciali pardonavimus eidem* Cecilie *executionem judicii prædicti; volentes quod eadem* Cecilia *à priſona predicta deliberetur & de corpore ſuo ulterius non ſit impetita occaſione judicii ſupradicti. In cujus, &c.* T. R. *apud* Weſtm. *XXV°. die* Aprilis.

per Bre. de privato Sigillo.

Convenit cum Record.
Laur. Halſted *deput.*
Algern. May *mil.*

39. Theſe 'tis true are as eminent *Inſtances* in their kind, and the truth of them back't with as good *Authorities*, as one could expect or deſire: and yet neither of them much exceed the *perpetuall faſt* (as I may call it) of one *Mary Vaughton* of *Wigginton* in this *County*, who from her cradle to this day has lived with ſo ſmall a quantity both of *meats* and *drinks*, that all people admire how nature is thus ſuſtained without any ſenſible exhauſtion; ſhe not eating in a day a piece above the ſize of half a Crown in *bread* and *butter*; or if *meat*, not above the quantity of a *pidgeons* legg at moſt: ſhe drinks neither *wine*, *ale*, or *beer*; but only *water*, or *milk*, or both mixt; and of either of theſe ſcarce a

ſpoonfull

ſpoonfull in a day. And yet ſhe is a maiden of a freſh complexion, and healthy enough, very piouſly diſpoſed, of the *Church* of *England*, and therefore the leſs likely to put a *trick* upon the world; beſide 'tis very well known to many worthy perſons with whom ſhe has lived, that any greater quantities, or different liquors, have always made her ſick.

40 Now to give a ſatisfactory reaſon of the long *abſtinence* of theſe *perſons*, who have lived thus with little, or no food at all; or to pronounce how it comes to paſs that *death*, or at leſt a ſignal *Maraſmus* or deſtructive conſumption has not inſued; though I dare not pretend: yet I cannot forbear ſo far to gratify the *Reader*, as to let him know, that I think the caſe to be no otherwiſe with theſe, than 'tis with *Leeches*, *Lizards*, *Snailes*, and the *Tortoiſes*, *Porcupines*, and *Toads*, abovementioned [f]: in all which the *natural heat* and *moiſture* is either ſo juſtly counterpoiſed; or elſe their *viſcid juices* do ſo overbalance and reſtrain the *activity* of their *heat*, that it is unable to rarify, or ſeperate the parts of their *moiſture*; whence there cannot follow any *perſpiration* or *conſumption*; and ſo no need of *reparation* by *meats* or *drinks*: upon which account ſome of them have lived divers months, and others half a year together without any viſible ſupply. Now what frequently is ſeen in ſo many *Species*'s, may ſometimes fall out too in *Individuals*, of other *Species*'s, in which 'tis not ſo uſually met with, when they happen to be qualifyed with the like *conſtitution*, as I ſuppoſe theſe *perſons* were; who by a peculiarity of temper, without impoſture or miracle, might faſt as above mention'd.

41. But I have more wonderfull paſſages relating to *Women*, than any of theſe yet to declare, whereof the firſt and ſtrangeſt is of one *Mary Woodward* of *Hardwick* in the pariſh of *Sandon*, who looſing her hearing at about 6 years of age, by her extraordinary ingenuity and ſtrickt obſervation of the peoples *lipps* that convers't with her, could perfectly underſtand what any perſon ſaid, though they ſpake ſo low that the *by-ſtanders* could not hear it: as has been frequently experimented by the right Honorable the Lady *Gerard*, and divers others of her *neighbours* now living, with whom ſhe would goe to *Church*, and bring away as much of the *Sermon* as the moſt attentive *hearer* there: all which ſhe did, not with difficulty, but ſo much eaſe and ſatisfaction, that if one turned aſide and ſpake, that ſhe could not ſee his *lipps*, ſhe thought her ſelf much diſobliged. Nay ſo very well ſkill'd was ſhe in this *Art* (which we may call *Labiomancy*), as 'tis generally beleived (though I could get no perſonall teſtimony of it, ſome perſons be-

[f] *Chap.* 4. §. 46.

ing

ing dead, and others removed into *Ireland* who ſometimes lay with her) that in the night time when in *bed*, if ſhe might lay but her hand on their *lipps* ſo as to feel the motions of them, ſhe could perfectly underſtand what her *bedfellows* ſaid, though it were never ſo dark.

42. For confirmation of the poſſibility and truth whereof, there are many parallel *Hiſtories* ſent us from abroad, of *perſons* that have done the ſame in all particulars: of which *Borellus* affords us one, of a certain Sea-man of *Xantoigne* who loſt his hearing at 5 years old, by the violence of a diſtemper, that was ſupplyed by nature with ſo admirable a *Sagacity*, that he could apprehend what was ſpoken with the loweſt voice, by the motion of the *lipps* only, though no *ſound* were made, and give an anſwer accordingly: tryal whereof was made by *Iſaac Tho. de Riolet* a learned *Phyſitian* of that *Country* who held diſcourſe with him at 25 foot diſtance, with a voice ſo low, that he could not hear himſelf ſpeak. Of which Dialogue *Borellus* has given us the particulars in his hiſtorical Obſervations [g]. As *Job a Meek'ren* alſo has, of the like diſcourſe between *Gulielmus Piſo* and another *deaf man*, who underſtood in like manner all queſtions put to him by the motion of the *lipps*, as appear'd by the anſwers, though ſpoke with ſo low a voice, that they moved the leſt imaginable; till at laſt *Piſo* ſpeaking *Latin*, the *deaf man* then only anſwer'd, that he ſpake a language he did not underſtand: which certainly was as ſatisfactory, as a direct anſwer could have been. Nor did he only anſwer ſingle queſtions, but like *Mary Woodward* could underſtand *Sermons* [h], as *Petrus a Caſtro* informs us one *John Ireunde* a Cabinet maker of *Salsborn* in *Sileſia* can alſo doe by the motion of the *lipps* only, underſtanding better ſuch as *whiſper* to him, than thoſe which ſpeak *loud* [i].

43. *Tulpius* likewiſe tells us of one *Simon Didericus* a *Hollander* who was made *deaf* by a fall from a *Tower*, that could repeat *Sermons* he had ſeen or learn't at *Church*, by the motion of the *Preachers lipps*, which he apprehended ratably better or worſe according as the ſpeakers *lipps* were ſmooth or hairy, lean or fat [k]. Upon which account he could talk with *women*, with much greater freedom than he could with *men*. The like whereof has been ſeen here in *England* as the reverend D^r. *Meric. Caſaubon* acquaints us, if we may credit the relations of two grave *divines*; one, telling him of a *Man*; the other of a *Woman*; both, deaf and dumb: who nevertheleſs at a certain diſtance by diligent

[g] *Pet. Borelli. Hiſtor. & obſerv. Medico-Phyſ. Cent.* 4. *Obſ.* 23. [h] *Jobi a Meek're Obſerv. Medico-Chirurg. cap.* 21. [i] *Miſcellanea Medico-Phyſ. German. An.* 1. *Obſerv.* 35. [k] *Nic. Tulpii Obſervat Medic. Lib.* 4. *cap.* 18.

obſervation of the motion of the mouth and face, could readily tell what was ſpoken unto them, but the *Woman* not unles the party ſpeaking was cloſe ſhaved, or beardleſs; which is probable enough, the muſcles of the mouth having peculiar *motions*, according to the variety of the *formations* of words[l]. And M^r. *Carew* tells us of one *Griſling* of *Saltaſh* in the *County* of *Cornwall*, who was alſo deaf and dumb, that if one ſpake deliberatly could doe the ſame *.

44. Nor is it much leſs a wonder that I am now about to relate of Madam *Skrymſher* of *Aqualat*, a Lady of much honor and virtue, who having felt for ſome time a *pricking* in her *Arm*, upon her frequent complaint to her tender husband, who pertook of the greif, and was officious to remove it, upon ſqueeſing her *Arm* he forced thence from about the *Baſilical* vein, firſt a *pins* point, then a good part of it appearing, he firmly took hold of it with a pair of *Ciſſers*, and immediatly drew it forth all but the *head*, which came off, and remaining behind in the skin, was there ſenſible to the touch for ſome time after. Now beſide that the *Lady* does not remember that ever ſhe ſwallowed a *pin*, or if ſhe had, or did otherwiſe at unawares take it in with her meat, how it ſhould paſs the *Lacteals*, or with the *blood* through the other ſmall *capillaries*, though it were never ſo little, is altogether as unintelligible, as that it ſhould be gotten in any other way without knowledg.

45. Wherefore I much rather beleive that it was ſome way or other ſwallowed inſenſibly, and that it pierced by degrees the *coats* of the *ſtomack*, and ſo paſt through the fleſh by unknown ways to the place where it came forth, as the *Needle* did, that was ſwallowed by *Henricus Alvarus* at ſix years old, which as *Scultetus* informs us came forth again out of one of his thighs when he was twenty four: eighteen years after[m]. Or as the *braſs Bodkin* mention'd by *Benivenius*, which being ſwallowed by a *Woman* lay in her ſtomack a whole year without trouble, after that begining to boare the *coats* of the *Ventricle*, it put her to great pain, in which after ſhe had continued (without help from *Phyſitians*) for about ten years, out dropt the *bodkin* through a ſmall hole it had made for it ſelf through the *ſtomack*, and the outward skin over againſt it[n].

46. Amongſt the *unuſual accidents* that have attended the femal Sex in the courſe of their lives, I think I may alſo reckon the narrow *eſcapes* they have made from *death*. Whereof I met

[l] *M. Caſaubon's Treatiſe of Enthuſiaſme Chap. 4. in initio.* * *Carew's Survey of Cornwall Book. 2. p. 113.* [m] *Joh. Sculteti Trichiaſis admirandæ pag. 19.* [n] *Antonii Benivenii de abditis Morbor. & Sanat. cauſis cap. 20.*

with

with one mention'd with admiration by every body at *Leek*, that happen'd not far off at the *black Meer* of *Morridg*, which though famous for nothing for which it is commonly reputed ſo, as that it is bottomleſs; no Cattle will drink of it; or birds fly over or ſettle upon it (all which I found falſe) yet is ſo, for the ſignal deliverance of a poor woman, inticed hither in a diſmall ſtormy night by a bloody *Ruffin*, who had firſt gotten her with child, and intended in this remote inhoſpitable place, to have diſpatch't her by drowning. The ſame night (*Providence* ſo ordering it) there were ſeveral perſons of inferior rank drinking in an *Ale-houſe* at *Leek*, whereof one having been out, and obſerving the darkneſs and other ill circumſtances of the weather, coming in again ſaid to the reſt of his *Companions*, that he were a ſtout man indeed that would venture to goe to the *black Meer* of *Morridg* in ſuch a night as that; to which one of them replying, that for a *Crown* or ſome ſuch Summe he would undertake it; the reſt joyning their purſes ſaid he ſhould have his demand. The bargain being ſtruck, away he went on his journey with a ſtick in his hand, which he was to leave there as a teſtimony of his performance; at length comeing near the *Meer*, he heard the lamentable cryes of this diſtreſſed *woman*, begging for mercy; which at firſt put him to a ſtand; but being a man of great reſolution and ſome policy, he went boldly on however, counterfeiting the preſence of divers other *perſons*, calling *Jack*, *Dick*, and *Thom*, and crying *here are the rogues we look't for*, &c. which being heard by the *Murderer* he left the *Woman* and fled, whom the other man found by the *Meer* ſide almoſt ſtript of her cloaths, and brought her with him to *Leek*, as an ample teſtimony of his having been at the *Meer*, and of Gods providence too.

47. Yet much greater was the deliverance of one *Margery Mouſole* of *Arley* in this *County*, who being convicted of killing her *baſtard* child, was, much more juſtly than *Ann Green* at *Oxford*, accordingly condemned and executed at *Stafford* for it, where ſhe was hanged by the neck the uſual time that other *Malefactors* are, yet like *Ann Green* and *Elizabeth* the Servant of one M^rs. *Cope* of *Oxford*[o], ſhe came to life again, as it has been much more common for *women* to doe in this caſe, than it has been for *men*: I ſuppoſe for the ſame reaſon that ſome *Animals* will live longer without *Air*, than others will, as was ſhowen above[p]; the juices of *Women* being more cold and viſcid, and ſo more tenacious of the ſenſitive ſoul than thoſe of *men* are. Which appear'd moſt

[o] *Nat. Hiſt. of Oxfordſh. Chap.* 8. §§. 12. 20. [p] *Chap.* 7. §. 46. *and Chap.* 8. §. 48.

wonderfully in the caſe of *Judith de Balſham, temp. Hen.* 3. who being convicted of receiving and concealing *theeves*, was condemned and hanged from 9 by the clock on *Munday* morning, till Sun-riſing on *Tueſday* following, and yet eſcaped with life as appears by her pardon, which for its rarity I ſhall here receite *verbatim*.

Ex Rotulo Paten. *de Anno Regni Regis* Henrici *tertii* 48°. *membr.* 5ª.

REX *omnibus, &c. Salutem. Quia* Inetta *de* Balſham *pro receptamento* latronum *ei impoſito nuper per conſiderationem* Curie *noſtre ſuſpendio adjudicata & ab hora nona diei* Lune *uſque poſt ortum Solis diei* Martis *ſequen. ſuſpenſa, viva evaſit, ſicut ex teſtimonio fide dignorum accepimus.* Nos *divine charitatis intuitu pardonavimus eidem* Inette *ſectam pacis noſtre que ad nos pertinet pro receptamento predicto & firmam pacem noſtram ei inde concedimus. In cujus, &c. Teſte Rege apud* Cantuar. XVI°. *die* Auguſti.

Covenit cum Recordo
Laur. Halſted *Deput.*
Algern. May *mil.*

How unwillingly the cold viſcid juices part with the ſenſitive ſoule, appear'd, I ſay, moſt ſtrangely in this caſe: unleſs we ſhall rather ſay ſhe could not be hanged, upon account that the *Larynx* or upper part of her *Wind-pipe* was turned to *bone*, as *Fallopius* tells us he has ſometimes found it[q], which poſſibly might be ſo ſtrong, that the weight of her body could not compreſs it, as it happened in the caſe of a *Swiſs*, who as I am told by the Reverend M^r. *Obadiah Walker* Maſter of *Univerſity College*, was attempted to be hanged no leſs than 13 times, yet lived notwithſtanding, by the benefit of his *Wind-pipe*, that after his death was found to be turned to a *bone:* which yet is ſtill wonderfull, ſince the *circulation* of the *blood* muſt be ſtopt however, unleſs his *veins* and *arteries* were likewiſe turned to *bone*, or the *rope* not ſlipt cloſe.

48. Thus having done with the *Women* ſolitarily conſidered, I ſhall next treat of the *Men* and the accidents that have attended them during the courſe of their lives in the like manner. And firſt of the extraordinary *perfections* of *Men* whether of body or

[q] *Gab. Fallopii oper Tom.* 1. *Obſerv. Anatom. Tract.* 6.

mind,

mind, and then of their *defects*. As for the *perfections* of the *body*, I take that of *ſtrength* to be one of the cheifeſt; wherein I met with ſome that excell'd ſo much, that unleſs I had ſeen the things done my ſelf, I ſhould have thought them incredible: particularly that of one *Godfrey Witrings* a butcher of *New-Caſtle*, whome I ſaw take a forme, at *Robert Launders* in the Lane, 6 foot 10 inches long, and 56 pounds weight; by one end in his *teeth* (holding his hands behind him, and bearing the leggs of that end next him againſt his breſt) and lift the other end the whole height of the parlour, ſtriking it 3 times againſt the boards of the room above. Now ſuppoſeing the leggs to ſtand about 10 inches from the end of the *form*, towards the middle, or *center* of *gravity*, which is near $\frac{1}{3}$ of the diſtance betwixt the end and the *Center*; by computation he lifted thus with his *teeth* about 168 pounds weight. Which is not ſo much as what was done by a Juglar *Cardan* tells us of, who took up the *maſt* of a ſmall boat with his *teeth*, and threw it firſt upon one ſhoulder, whence he removed it to the other, without touching it with his hands *.

49. Nor ſo much as was performed by one *Nicholas Cooper* of *Acton-Truſſel*, who was alſo a man of ſo extraordinary ſtrength in thoſe parts, that he could lift a ſack of *wheat* of 4 ſtrike with his *teeth*; which accounting but 50 pounds to the *ſtrike* (than which ſcarce any weighs leſs) amounts to 200 pounds weight, but reckoning at 60 pounds *per buſhell* (as ſome *wheat* weighs) he lifted 240. But this was not the utmoſt he could doe neither, for once upon a *wager*, he took up a man, by a coard tyed round him, of 300 weight, and ſet him on a *Table*. Nor was he ſtrong in his *teeth* only but in the whole frame of his body, having taken up at a time 3 ſizeable men, one under each *Arm*, and a third in his *teeth*. Which is not much leſs than that mention'd by *Cardan*, who ſaw a man dance with two under his armes, as many upon his ſhoulders, and one hanging about his neck †. And formerly being deſired to give a *ſpecimen* of his ſtrength, he ſet his back under the *Axle-tree* of a *Cart* laden with 3 horſload and $\frac{1}{2}$ of *coals*, and not only lifted it *wheels* and all, but turned it quite round. The ſame perſon having a *Leſow* quite overrun with well grown *broom*, near a mans height; whereas others are forced to ſtock or root up ſuch broom with *Matocks* and other *inſtruments*; he pluck't up all *his* by the *roots* with his hands, though the ground was 4 *Acres*. To whom let me add that one *Thomas Wall* of *Wolverhampton* was once ſo ſtrong in his *teeth*, that he could readily bend a large *nail* or *tenterhook*, and ſet it ſtraight

* *Hieron. Cardani. de Subtilitate Lib.* 11. † *Ibidem.*

again with them: for the better performance whereof I was told his *teeth* were *molares* before, inſtead of *inciſores*; but upon examination I found them not ſo, only indeed his *inciſores* were of an unuſual thickneſs.

50. Not at all inferior to any of theſe in matters of *ſtrength*, was one *Walter Parſons* of *Weſt-Bromwich* in this *County*, though *his* was not ſo much to be admired as *theirs*, who were Men but of a middleing ordinary ſize, whereas *Parſons* had a ſtature proportionable to his ſtrength; being ſo very tall when he was a young *apprentice*, that they were forced to digg a hole in the ground for him to ſtand in up to his knees, when he ſtruck at the *Anvil* (for he was firſt a *Black-Smith*) or ſawed wood with another, that he might be at a *Level* with his *fellow-workman*. At length he became *Porter* to King *James* the firſt, where he behaved himſelf ſo generouſly, that though he had valour equal to his ſtrength, yet he ſcorned to take advantage to injure any perſon by it; upon which account we have but few *experiments* left us of his great *ſtrength*, but ſuch as were ſportive: as that being affronted by a man of ordinary ſtature, as he walkt *London* ſtreets, he only took him up by the waſtband of his breeches, and hung him upon one of the hooks in the *ſhambles*, to be ridicul'd by the people, and ſo went his way: and that ſometimes by way of merryment, he would take two of the talleſt *Yeomen* of the *Guard* (like the *Gizard* and *Liver*) under his *Arms*, and carry them as he pleaſed (in ſpight of all reſiſtance) about the *Guard Chamber*: where (if I am not miſinformed) *that* is his *picture* which hangs at the end next the ſtairs, leading down into the Court toward *White-Hall* Gate.

51. There is another *picture* of him, as I have been told alſo by ſome, in the great room at the *Popes-head* Tavern, in *Popes-head* Alley: but whether they are the true *pictures* of him or noe, it being uncertain that they were drawn in the juſt proportion, I took not the pains to have them meaſur'd; chuſing rather to collect what his height might be, from a true meaſure of his hand yet remaining upon a piece of Wainſcot at *Bentley-Hall*: by which it appears that from the *Carpus* to the end of the *middle finger*, it was eleven inches long, and the *palm* 6 inches broad: which (abatements being made interchangeably) is much about the ſize of the hand of *Edmund Malloon* a youth of 19 years old, born at *Port-Leiceſter* in *Ireland*, for his extraordinary ſtature ſhewn publickly here in *Oxford* in 1684, which though from the *Carpus* to the end of the *middle finger* it were 12 inches long, yet the *palm* was no more than five inches broad. i. e. it fell as much ſhort of *Parſons*'s hand in the bredth, as it exceeded it in length.

52. Now

52. Now the proportion of the ſtature of *Edmund Malloon* to this hand, being as 7 and ½ to 1. that is being 7 foot 6 inches high, thence we may rationally conclude that *Parſons* muſt alſo be thereabout; both much about the height of *John Tates* born at *Schoonhoven* in *Holland*, the length of whoſe *Cubit* (as Mr. *Ray* tells us) was 25 inches and ½ the length of his *hand* to the *wriſt* 11 inches, and his *middle finger* 7 inches [r]. All ſhort of the ſtature of *Martin Wierwski* a *Polander* who at the age of 42 years being preſented to the Emperor *Maximilian* the ſecond as a rarity of nature, was found full eight foot high [s]. And ſo was one of the *Someries*; Baron (and Founder of the Priory) of *Dudley*; if we may believe either his *Statue*, or *hollow* of the ſtone cheſt in which his body lay, both which as Mr. *Erdeſwick* teſtifies meaſured 8 foot, than which had the body been any thing ſhorter, it could not with conveniency have been laid there [t], conſidering how they anciently cut their ſtone coffins. Who yet were neither of them ſo tall as *John Middleton*, commonly call'd the *child* of *Hale* in the *County* of *Lanc*: whoſe hand from the *Carpus* to the end of his *middle finger* was 17 inches long, his *palm* 8 inches and broad, and his whole height 9 foot 3 inches, wanting but ſix inches of the height of *Goliah*, if that in *Bruſen-Noſe* College *Library* (drawn at length, as 'tis ſaid, in his juſt proportion) be a true piece of him.

53. As for the *perfections* of the *mind*, cheifly ſhewn by good works, though ſo much in our own choiſe, they are as rarely acquired to any great *eminence*, as thoſe of the *body* are given; yet ſome evidences there have been too of ſuch as theſe, as well here as elſewhere: in the relation whereof, I ſhall decline the foundations of *Religious houſes*, *Hoſpitals*, and *Scholas*, theſe having been the *ſubjects* of other pens; and apply my ſelf only to ſuch as have been omitted by others, *viz.* the founding or rebuilding of *Churches* and *Chappels*, which have been ſo ſeldom done by private hands, that the contrary to it has grown to a *Proverb*. There have been ſome notwithſtanding in all ages (not excepting our owne) whome God hath raiſed up for theſe purpoſes, whereof the firſt that I find any memorial of, is one *David Kenric* born at *Aſhley* in this *County*, a Souldier under *Edward* the black Prince who notwithſtanding the little piety that attends the *Camp*, was the Founder or rebuilder of this *Church*, where there remains to this day a *Statue* of him to the ſhoulders, and againſt the wall within ſuch a *border* as are commonly put

[r] *Mr. Ray's Obſervations Topograph, &c. p.* 6. [s] *Dr. Brownes Travels through Germany. p.* 3. [t] *Mr. Sampſon Erdeſwick's view of Staffordſhire in Dudley-Caſtle.*

about

about the *Sentences* in *Churches*, this inſcription *in perpetuam rei memoriam.*

Manubias Deo.
David Kenricus (*Pietas ejus memoriæ*)
Hoc virtutis præmiolum *dicavit.*

Mira cano, Pietas *ſævis reperitur in Armis*;
Ædificat bellum *ſternere quod ſoleat.*
Hanc ſacram ſtruxit miles *memorabilis* Ædem,
Principe *ſub* nigro, *quem meruiſſe ferunt.*
David Kenricus, Davide *beatior illo*,
Templum *cui ſuperis ædificare nefas.*

54. In the year of our Lord 1515. one *Thomas Rolleſton* founded or rebuilt the *Tower* at leaſt of the *Church* of *Mathfield* in this *County*, as appears by this *Inſcription* over the Weſt doore of the ſame *ſteeple*: *Hoc Opus inceptum per* Thomam Rolleſtone *An. Dom.* 1515. and another over the Weſt window of it. *viz. Ainſy et mievix peult eſtre.* i. e. Thus it is, and may be better. *Thomas Rolleſtone petit Orationes.* By which it is evident, that this *Thomas Rolleſton* was of the ancient family of the *Rolleſtons* of *Rollſtone*, under whoſe *Arms* in the Church there I found the ſame *Motto*, though the *French* not ſo old. Quickly after in *Anno* 1517. *John Taylor* D^r. of Laws, Arch-Deacon of *Derby* and *Buckingham*, and *Maſter* of the *Rolls temp. Hen.* 8. one of the *Trimelli* mentioned §. 19. of this *Chapter*, built the *Chappel* of *Barton* upon or near the place where the *Cottage* ſtood wherein he was *born*, as is plain from the *Inſcriptions* in *Saxon* Characters in *rilieve* work over every other *Pillar* of the North and South ſides of the *Navis* of the ſaid *Chappel.*

I. T. *horum trium* Gemellorum*, *natu maximus.* being over the firſt *pillar*,
Decretorum Doctor, *& ſacrorum Canonum* Profeſſor. over the third,
Archidiaconus, Derbiæ *&* Bukkyngham, *nec non &.* over the fift, and
Magiſter Rotulorum *illuſtriſſimi Regis* H. VIII. *An. Reg. ſui* 20. over the ſeventh.

theſe *Armes*, viz. *Sa.* on a Chev. *Arg^t.* 3 violets ſlipped, the flowers of the *ſecond*, the ſtalks and leaves *Or*, between 3 childrens heads

* Trimellorum, *it ſhould have been.*

couped

couped at the ſhoulders alſo of the *ſecond*, haired and veſted of the *third* in a cheif of the ſame, a text T *Az.* between two Roſes *gu.* ſeeded of the *cheif*, being placed interchangeably over the 2. 4. 6. and 8th. *pillars*, there being but eight *pillars* in all, *viz.* 4 on each ſide the *Chappel*, which is a neat piece of work, ſomewhat of the form of *Hen.* the *ſevenths* at *Weſtminſter*, perhaps ſo built in honor and imitation of his great *Patron*, who gave him his Education and perferment afterwards.

55. The ancient Family of *Okeover* of *Okeover* have alſo built them ſuch a beautifull *Oratory* or houſe of prayer adjoyning to their *Seat*; whereof if the *Reader* pleaſe to look back to *Tab.* 18. he may have a proſpect: which *Chappel* they have endowed with maintenance for a *Chaplin*: but exempted it from all ordinary Juriſdiction (as all *Royal Chapples* are) I ſuppoſe by *Charter* from the King: for as the King can create or found a *Donative* exempt from the viſitation of the *ordinary*; ſo he may by his *Charter* licence any Subject to found ſuch a *Church* or *Chappel*, and to ordain that it ſhall be a *donative* and not preſentable; and to be viſited and regulated by the *Founder*, and not by the *Ordinary*[t]. Upon which account the *Founder* or Lord of this *Manor* preſently upon election of his *Chaplin*, takes bond of him for the ſafe keeping the *Seales* of his *Church*, that he might not leaſe out the *tithes* to his prejudice. Alſo the worthy *Thomas Broughton* of *Broughton* Eſq; built ſuch another *Oratory* or *Chappel*, near their *Seat*, for the uſe of that *family*, at his own charge, only 100*lb.* was left by his Unkle *Peter Broughton* Eſq; in order to it, who alſo endowed it with 20*lb.* *per Annum*, towards the maintenance of a *Chaplin*. And the generous D^r. *Pye Anno* 1606 comeing to viſit ſome Relations at *Darlaſton* near *Wednesbury*, upon occaſion that ſome of his *Servants* going to ring in the old Steeple which was of wood and weak, had been in danger of their lives; profer'd the *Town*, that in caſe they would be at the charge of bringing ſtone, he would find Workmanſhip, and build them a *Tower*, which accordingly he did: in memroy of whoſe charity, in alluſion to his name, they put this inſcription on the outſide of it.

Pietati & Piis
Vive pius, & moriere pius

56. But he that has exceeded all in a publick benefaction of this nature, is the worthy *Walter Chetwynd* of *Ingeſtre* Eſq; who being *Patron* of the place, and conſidering that the *Church* ſtood very incommodiouſly, and was ſo ruinous, that it muſt be better

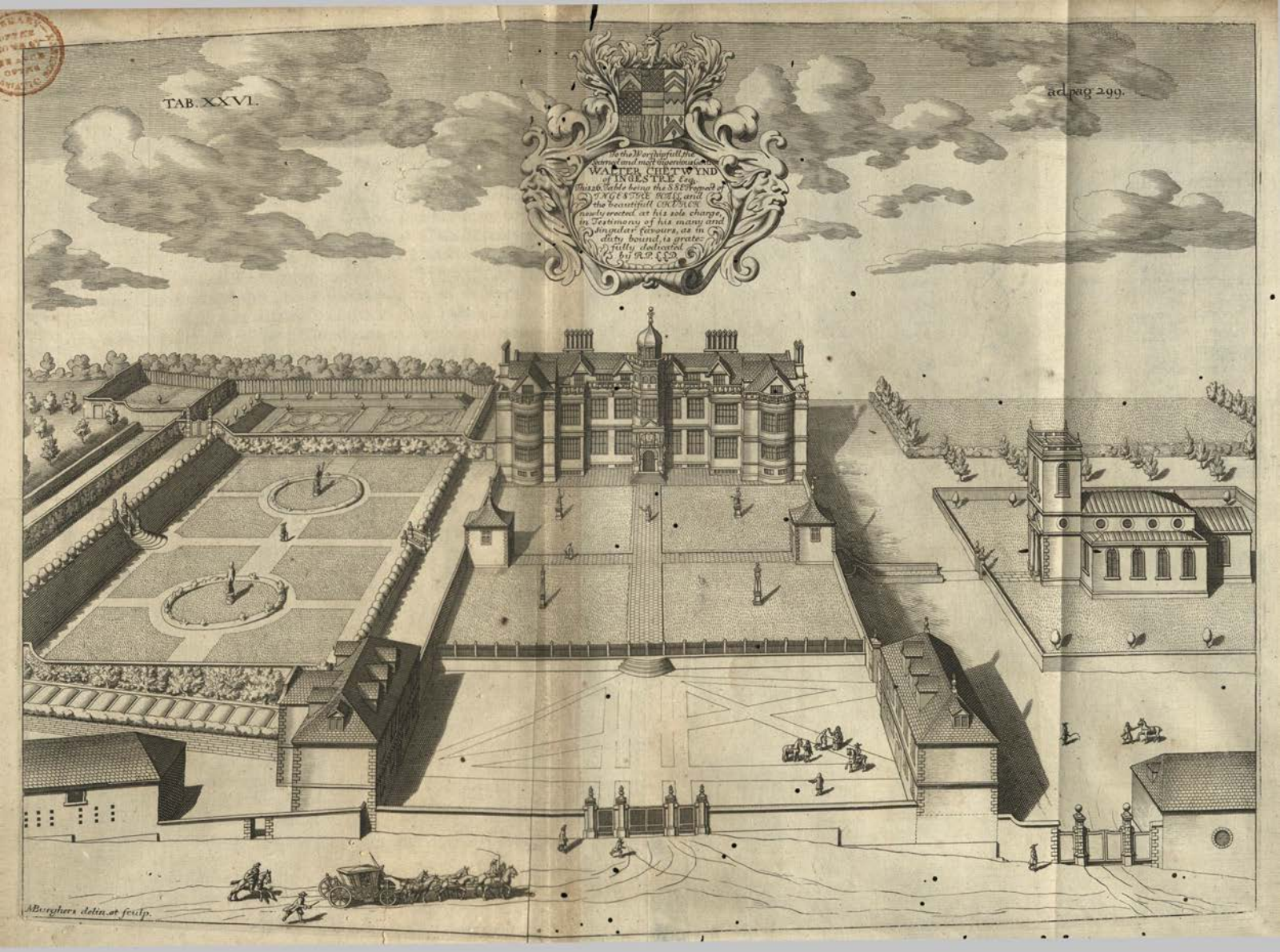
[t] *Lord Cook's Inſtitutes of the Laws of England. Part* 1. *Lib.* 3. *Sect.* 648.

to rebuild, than repair it: in *An.* 1672 moſt generouſly petition'd the moſt Reverend Father in God *Gilbert* by divine Providence Lord *Arch-Biſhop* of *Canterbury* that he might accordingly rebuild it at a more commodious place. In order whereunto the ſaid *Arch-Biſhop* of *Cant.* by an inſtrument bearing date May the ſecond 1672 did Commiſſion S^r. *Edward Bagot* of *Blitheſield* Baron^t. *William Chetwynd* of *Rugeley* Eſq; *Richard Harriſon* B. D. and Canon of *Lichfield*, and *William Jennings* Clerk Rector of *Church Eyton*, all of the *County* of *Stafford*; in his ſtead to enquire into the ſtate and condition of the ſaid *Church*; to judg what might be moſt expedient in this matter; and to tranſmit the ſame to him under their hands and ſeals. The 19th. of *July* following the *Commiſſioners* above mention'd upon view of the ſaid *Church*, within and without, did find it ſo ruinous, that they judged it rather fit to be pull'd down and wholy demoliſhed, than repaired; and that the place deſigned by the ſaid *Walter Chetwynd* Eſq; was a much more fit and congruous place; which they accordingly ſignifyed under their hands and Seales the 22 of *July* following.

57. Whereupon the ſaid *Arch-Biſhop* conſenting to the religious deſire of the ſaid *Walter Chetwynd*, by an Inſtrument bearing date at *Lambeth Apr.* 12. 1673 did grant a *faculty* to the ſaid *Walter Chetwynd* to build his deſigned new *Church*, and convert the materials of the old one to that uſe[u]. The foundation accordingly was lay'd the ſame year; mill'd ſhillings, half pence, and farthings, coyn'd that year, being put into hollow places cut fit for that purpoſe, in the large corner ſtones of the *Steeple*, by M^r. *Chetwynd* himſelf and other *Gentlemen*. And in *Anno* 1676 it was wholy finiſht, being built in the form of a *pariſh-Church*, not great, but uniform and elegant; the out walls being all of ſquared free-ſtone, with a well proportiond *Tower* at the *weſt* end, of the ſame; adorn'd round the top with *rail* and *balliſter*, and *flowerpots* at each corner. The *Chancell* within paved throughout with black and white marble; the *Windows* illuſtrated with the *Armes* and *matches* of the *Chetwynds* in *painted glaſs*; and the *Ceilings* with the ſame in *Fretwork*; the *ſide-walls* beautifyed with *funeral Monuments* of the *Family*, curiouſly carved in white marble; and the whole vaulted underneath for a dormitory for it, whither all the bodies belonging to it were removed out of the old *Church*, and decently depoſited.

58. The *Navis* or body of the *Church* ſeparated from the *Chan-*

[u] *Ex Chartularia Familiæ de Chetwynd. M. S. penes eundem Walterum Chetwynd Armig.*


TAB. XXVI.
ad pag 299.
To the Worshipfull, the
Learned and most ingenious Gentle
WALTER CHETWYND
of INGESTRE Esq.
This 26. Table being the SSE Prospect of
INGESTRE HALL, and
the beautifull CHURCH
newly erected at his sole charge,
in Testimony of his many and
singular favours, as in
duty bound, is grate-
fully dedicated
by R.P. L.L.D.
A.Burghers delin. et sculp.

cell with an elegant *skreen* of *Flanders* Oak, garnish't with the Kings *Armes*, and great variety of other curious *carvings*; at the *South* corner whereof stands the *Pulpit*, made of the same wood, adorned in like manner with *carved* work, and the *Iron-work* about it curiously *painted* and *guilt*. The *Seats* are also made of the same *Oak*, all of an equal height and goodness through the whole *Church*; the *Lord* himself not sitting in a finer *Seat* (only somewhat larger) than the meanest of his *Tenants*; so humble is this truly Wise man, in the midst of all this *magnificence*. Near the entrance within on the left hand, stands a curious *Font* all of white marble, the whole *Church* too being *Ceiled* with the finest plaister, garnish't also with deep and noble *Fretwork*. And over the Entrance without, which is under the *Tower*, on a small Table of white marble, only this modest *Inscription* in laid black.

Deo Opt. Max.
Templum *Hoc*
a fundamentis extructum
WALTERUS CHETWYND
(Walt. *fil.* Walt. Equ. Aur. *nepos*)
L. M.
D. D. D.
Anno Æræ Christianæ
1676.

59. The *Church* being thus finisht at the sole Charge of the said *Walter Chetwynd*, in *August An.* 1677 it was solemnly consecrated by the right Reverend Father in God *Thomas* Lord *Bishop* of *Coventry* and *Lichfield*; the Dean of *Lichfield* preaching the Sermon; and some others of the most eminent *Clergy*, reading prayers; baptizing a Child; Churching a woman; joyning a couple in Matrimony; and burying another; all which *offices* were also there performed the same day: the pious and generous *Founder* and *Patron* offering upon the *Altar* the tithes of *Hopton* a Village hard by, to the value of fifty pounds *per Annum*, as an addition to the *Rectory* for ever; presenting the *Bishop* and *Dean* at the same time, each with a piece of plate double guilt, as a gratefull acknowledgment of their *Service*; and entertaining the *Nobility*, *Clergy*, and *Gentry*, both Men and Women, of the whole *County* in a manner, which came in that day to see the solemnity performed, with a most splendid dinner at his *house* near adjoyning, which together with the new *Church* are both here represented, *Tab.* 26. Where all things were carryed with a *Sobriety*

and *gravity* suitable to the *occasion*, concluding the *day* with hearty prayers for the prosperity of the *Church*; and a universal applause of the piety and generosity of the noble *Founder*; and the whole manage of the *work*, from the foundation to the end. A *work* indeed worthy of his *name* and *Family*, and more to be esteemed than all his *Gentility* and *Learning*, though both be great: which I seriously wish for the *Readers* sake and *His*, may some way or other hereafter be made known to *Posterity* by a better *Pen*: by such a *Pen* (I mean) as can make his *praise* as immortal as his *merits*, and give the unborn world a compleat pattern of *generosity* and *piety* for their perpetual imitation.

60. After the *perfections* of the bodies and minds of men, *Logic* directs me next to treat of the *imperfections* of both: and first amongst those of the *body*, I think none more deplorable than the *want* of *sight*; which yet by the wonderfull sagacity of some that want it, is so strangely supplyed; that as some abovemention'd have learned to *hear* with their *Eyes*, so others in like manner by their exquisit *touch*, and nice *hearing*, have taught themselves to *see* with their *hands* and *ears*. By which means it is that *Edward Ingram* of *Heath-hill* in the parish of *Sherriff-Hales*, though he has been blind from the fourth or fift year of his age, can yet goe to *Church* by himself, and all about the *Country*; he can also mend *shooes*; and glase *windows*; make his own *shirts*; and most sorts of *Joyners* work; lays *floores*, &c. and does almost any kind of *handy-Work*; and all only by the help of his *Ears* and *hands*.

61. Thus as I am credibly inform'd by the ingenious *Joseph Brown* of *Woodchester* in *Glocestershire*, (the excellent *Graver* of the *Map* of this *County*) one *Richard Clutterbuck* of *Rodborough* a neighbour of his, though perfectly blind, hath so very curious an *Ear*, and *hand*; that he can hear the fine *Sand* of an hour-glass *fall*, by which means he can make a most accurat judgment of many actions and things: and so exquisit is his *feeling*, that (like *Martin Catelyn* mention'd by *Guicciardin*†) he performes almost any sort of curious work: makes excellent *heads* for *staves* or *Canes*; and all sorts of *string-musical instruments*; which he plays on too by *notes*, cut in their usual form, and set upon protuberant lines on a board; he takes a *Watch* to pieces, and sets it together again; and so an *Organ* or *Virginals*; and puts them in *tune*; and has contrived so many pretty *Mechanical* devices for divers uses, that it would be tedious to recount them. And yet neither of these come near *Van Eyck* the Organist of *Utrecht*, who

† *Lud. Guicciardini Comm. de rebus Memorab. maxime in Belgio.*

though

though he has been blind from two years old, does every thing as nimbly, as if he carryed his *Eyes* in his *hands*; plays on all sorts of *Instruments*; and can tell you in a croud of *Virgins* and *young women*, which is the *faireſt*. More yet is performed by *Peter* of *Maſtrict*, who as *Job Meek'ren* informs us, though perfectly *blind*, plays at *dice* and *cards*; and diſtinguiſhes the *colours* of *cloth* by the *touch* [w].

62. To the *imperfections* of the *body*, the unuſual diſtempers and diſeaſes of it, muſt alſo be referr'd; and ſuch no doubt on't I may reckon a ſtrange *Boulimy* or rather *Pica*, that ſeized one *Brian Careſwell* of the pariſh of *Forton*, who would knaw and eat both *Linnen* and *Woollen*: nay to that height of a *habit* (or what elſe I may call it) was he brought at length in this matter, that he would eat *ropes*, and the very *blankets* of the bed whereon he lay; and this not only *waking*, but the *ſheets*, and his *ſhirt* from his back as he *ſlept*. That a *woman* ſhould have long'd to have done ſuch things as theſe, had not been ſo extraordinary, it being uſual for them in that condition to deſire unreaſonable things; ſuch as to ſuck the *wind* out of *bellows*; to hear the crackleing of *Cinders* under their feet [x]; and (as *Borellus* tells us one did) to eat *human Excrements* dryed and pouder'd [y]; but that a man ſhould thus long after ſuch uninviting things, I think is rarely heard of. However this alone will ſerve to ſhew us, that theſe *diſtempers* doe not always (as ſome have thought) ariſe from malignant vapors of the *Uterus* only, which thus miſlead the *fancy*; but ſometimes alſo from a depravation of the *menſtruum* of the *Stomack*, which may infect the *brain* as well, and occaſion the like inordinat appetite.

63. It may alſo be reckon'd amongſt the *uncommon diſtempers*, that one *George Holden* a butcher of *Walſall* was long ſick of a periodical *Aſthma*, which conſtantly came upon him once in 14 or 20 days at moſt; of which at laſt dyeing, and his body being open'd, yet all his *Viſcera* (the *Lungs* eſpecially) were found well and ſound, there being no ſignes left either of *Phlegme* or *viſcous humor*, that had ever affected them; or of any ſtagnation of the *blood* in the veins; nor was there any thing met with unuſual in him (as the learned Dr. *Needham* informed Dr. *Willis*) but that many ſtones were found in his *Gall-Bladder* [z]. Not that theſe learned Men did think the *dyſpnæa* or diſeaſe of the perſon, was to be aſcribed to theſe *ſtones*, but to a convulſion of *Nerves*

[w] *Jobi a Meek'ren Obſerv. Medico-Chirurg. cap.* 20. [x] *Philoſoph. Tranſact. Numb.* 29. [y] *Petr. Borelli Hiſtor. & Obſerv. rar. Medico-Phyſ. Cent.* 4. *Obſerv.* 2. [z] *Thom. Williſii de morbis convulſivis cap.* 12.

about the *Lungs*, or amongſt the *Muſcles* ſubſervient to *breathing*, which poſſibly might ariſe either from ſevere *vellications* in the *Inteſtines* by ſharp humors; ill ſeparation of the *nervous juice* in the *brain*; or obſtruction of them in the *nerves* themſelves; either of which might cauſe ſuch a convulſive cough, without any affection of the *lungs* at all.

64. It may alſo not unreaſonably be accounted a *diſtemper* (provided it be not an effect of *temperance*) that ſome men have not the uſual quantity of *ſpittle*, that others have; it being ſo neceſſary a concurrent at leſt, for the performance of *concoction*: which how it is performed in thoſe that have *none*, perhaps may not be unworthy our conſideration. Now that there are ſuch, I can inſtance in one *James Plimmer*, well known at *Rouceſter*, who though a great *Tobacconiſt*, never *ſpits* in the ſmoking of ten pipes together, nay ſome people told me that he never did ſpit though he ſmok't never ſo many, and I ſpake with a *Nephew* of his, that lives in the ſame houſe with him, who told me he never ſaw him *ſpit* in his life. I am alſo credibly informed of one *Ricarby* of *Cokermouth* in the *County* of *Cumberland* a great ſmoker, &c. that never *ſpit* in his life. And *Borellus* tells us of a certain *Phyſician* his familiar acquaintance, though fat and phlegmatic, that never either *ſpit* or vented *mucus* at the noſe, yet enjoyed notwithſtanding perfect health; nor was he ever very *thirſty*, which made *Borellus* conjecture, that theſe *excrements* being obſtructed in the *noſe*, &c. were ſwallowed down the *throat*, and ſo bedewed the *Larynx*, that there was little or no need of any other *beverage*[a].

65. Which I believe in great meaſure may alſo be true, of moſt, if not all of thoſe that don't *ſpit*: for though it be certain what *Hippocrates* aſſerts, *viz.* μύξαι καὶ σίελα, &c. i. e. that *mucus* and *Saliva* be *repletionis indices*[b]; *& qui parce edunt & parce bibunt nunquam humoralibus tentantur morbis*[c]; which I know to be true of a perſon of *Honor* of my own acquaintance, that only upon account of his ſtrict *temperance* does not *ſpit* perhaps once in a *Month*; upon which account too we may well preſume that *Antonia* the wife of *Druſus* mention'd by *Pliny* never *ſpit*[d]; and ſo perhaps thoſe *people* he mentions in *Æthiopia*, who though five Cubits high yet did never *ſpit*[e]. Though (I ſay) there may be many that doe not *ſpit*, upon account of their *temperance*, yet I doe not believe there are any men ſo wholy free from *ſpiting*; but they

[a] *Petr. Borelli Hiſtor. & Obſerv. rar. Medico-Phyſ. Cent.* 2. *Obſerv.* 68. [b] *Hippocrat. Coi de Vict. rat. Lib.* 3. §. 4. [c] *Idem; de intern affection.* §. 5. [d] *C. Plinii* 2^di. *Hiſt. Nat. Lib.* 7. *cap.* 19. [e] *Ibidem cap.* 2.

have

have enough to ſuffice for moiſtening the *Larynx*; for mixing with their *food*; and aſſiſting *digeſtion*; though they have no *ſuperfluity* to throw off in *ſpitle*, as thoſe who live plentifully commonly doe.

66. Next the imperfections of the *body*, follow thoſe of the *mind*; which are ſo much greater as the *Soule* is more noble than the *body*: thoſe who are void of *underſtanding* being more helpleſs and miſerable; than ſuch as are either *lame*, *deaf*, or *blind*. Yet even theſe ſometimes have ſuch natural *aſſiſtances*, that they can performe things ſcarce attainable by the quickeſt parts or moſt ſolid underſtandings. Whereof D^r. *Willis* gives us a moſt remarkable *inſtance*, of a certain *Foole* who having been long uſed to repeat the *ſtrokes* of a *Clock* near which he lived with a loud voice; comeing after to live where there was none, yet retained ſo ſtrong *impreſſions* of it, that he could exactly diſtinguiſh the *horary diſtances*, and would perſonate ſo many *ſtrokes* of the *Clock* with a loud voice as oft as an hour paſt, ſucceſſively increaſing the *number* of each hour, according as the time required; from which he could not be diverted, by any ſort of buſineſs they could ſet him about: being become in a manner a natural *living* Clock, ſo ſtrongly had *Cuſtom* wrought this upon him.

67. Which *impreſſions* as the learned D^r. imagins, were cheifly made upon his *Animal ſpirits*; which having been accuſtom'd to be excited at ſuch *ſtated* times, were brought at length by long *imitation*, to diſtinguiſh thoſe *periods* of their own accord[f]: by the ſame means as moſt people naturally know the uſual times of *dinner* and *ſupper*; and *ſleep*, and *wake* in the morn about the ſame time they have uſually done, without the help of a *Clock*. But I was told of a meer *Natural*, one *Richard Morſe*, kept generally by the Familyes of *Draycot* and *Fowler*, at *Paynſley* and S^t. *Thomas* whoſe ſtrange ſagacity in diſtinguiſhing times much exceeded that *inſtance*, and cannot be ſolved by any ſuch *cuſtomary motions* of the *Animal ſpirits*. For he would not only tell you the *changes* of the *Moon*; the times of *Eclipſes*; and at what time *Eaſter* and *Whitſuntide* fell; or any other *moveable feaſt* whatever; but at what time any of them had, or ſhould fall, at any *diſtance* of *years*, paſt or to come. Which is ſo great a wonder, that had I not received it from very *ſober hands*, and of the beſt *quality*; I could no more have believed it, than I am now able to reſolve the *Reader*, by what *natural meanes* it could poſſibly be done: only that in general it could not be performed by any thing that relyes upon the *force* of *Cuſtom*; theſe *Feaſts* being movable: and

[f] *Tho. Williſii de Anima. Brutorum Part.* 1. *cap.* 16.

that

that therefore it muſt be referr'd, to ſome other more remote unknown *impreſſions* (unleſs he had been taught ſome eaſy rule for it) intimately and purely ſeated in the *ſoule* it ſelf.

68. Many of the *Vices* of Men may alſo be reckon'd, *imperfections* purely of the *ſoule* it ſelf, whereof there have been ſome as extraordinary here, as any of the *Virtues* above mentioned, were they as fit to be related. I ſhall only inſtance in *one*; which becauſe lately done, and moſt wonderfully puniſh't, may poſſibly be beneficial in deterring others from committing the like wickedneſs, which brought down ſo dreadfull a *Judgment* upon one *John Duncalf* a ſtrong luſty young man of about 22 years of age, born at *Codſal* in this *County*, but bound apprentice to *Tho. Gibbons* wheelwright of *Kings-Swinford*; who though he could write and read, yet for a long time having wholy neglected all manner of ſervice and worſhip of *God*, and given himſelf up to *Idleneſs*, *Stealing*, *Lyeing*, *Curſing*, *Swearing*, *drunkeneſs*, &c. amongſt many other *villanies*, he at length ſtole a *Bible*, at the houſe of *Humphry Babb* of the *Grangemill*, whilſt his wife drew him ſome ſmall drink that he begged of her; which he ſould to a *maid* living near the *Heathforge*, not fare from the place where he had lately ſtole it: by which means Goodwif *Babb* quickly heard of her *bible*, and by whome it was ſtole. This being noiſed about the *Country* and comeing to his ears, he not only denyed it with great fierceneſs, but execrated and curſed himſelf, *wiſhing his hands might rot off*, if the thing were true.

69. After this he went and wrought with one *Thomas Osborn* a Joyner of *Dudley* about a fortnight, but his fleſh begining to grow black at the *wriſts*, within few days after he made the *execration*, and his whole body weak and feeble, he endeavour'd to return toward his acquaintance again: but finding himſelf in the way not able to goe further, he laid himſelf down in the barn at *Purton*, the ſeat of the right Worſhipfull S^r. *Walter Wrotteſly*, where being found after two days and nights or thereabout, he was kept at the charge of the pariſh of *Tettenhall*, til the next monthley meeting of the *Juſtices* of Peace, when it being found upon examination that the pariſh of *Kings-Swinford* was the laſt place of his aboad he was carryed thither, and committed to the care of one *John Bennet* of *Wall-Heath-ſide* [g]. By this time his hands and leggs, being both deprived of all ſenſe and motion, look't blackiſh and dyeing; a *Circle* as it were like a *Ligature* (as was obſerved by an ingenious neighbouring *Gentleman*) compaſſing each *wriſt* and *knee* at the joynt; dividing the ſound from the dying parts, and

[g] *Mr. Illingworth's Narrative of this ſad Judgment.*

prohi-

prohibiting any *nouriſhment* to paſs thoſe bounds; ſo that the *blood* and *ſpirits* being wonderfully ſtopt in their *circulation*, it neceſſarily followed, that the *parts* thus deprived of their wonted ſupply, muſt *wither* and *dye* as as a leafe in *Autumn*: which ſad progreſs they made till both *hands* and *leggs*, from the *wriſts* and *knees*, became dead and dryed, black and hard like *Mummy*, before they fell off at the joynts, which at length they did inſenſibly to the *poor man*[h], who perceived it not, till his *keeper* told him, and ſhewed them him, holding them up in his hands.

70. Above the forementioned *Circles* the fleſh at firſt both at his *wriſts* and *knees* roſe in great *tumors* or *knots*, which after a while began to break and run; the *nouriſhing juice* (deſigned by nature to have fed the *lower* parts) emptying it ſelf by thoſe corrupted ſores in a *quitture* or *Sanies*, ſo inſupportably ſtinking that few of his *viſitants* (though they were many thouſands) could endure the room without ſome ſtrong *odoriferous defenſative*. Shortly after the *fleſh* began to ſhrink from the *bones* at thoſe places where the putrid matter came forth, many little *wormes* iſſuing from the rotten fleſh: but when the dead limbs were dropt off, the *joynts* and *fleſh* above look't pretty well and healthy, ſeeming free of the former *mortification*; the *fleſh* indeed ſtill being *raw*, but *ſweet*; and ſo quick and ſenſible, that he complained grievouſly upon the leſt touch: inſomuch that many were induced to believe, that an eaſy *cure* might have been made of it; for the ſtinking ichorous humor was once quite gone; whereof the *poore man* himſelf was alſo perſwaded; ſaying, *that now the execration wherewith he had curſed himſelf was fully come to paſs (in that his* hands *were* rotted *off) he was perſwaded now it would goe no further.* But the *poor creature* wanting all aſſiſtances both of *Art* & good *Medicines*, ſave what the application of the leaves of *Mullein* afforded, which were uſed by his *Keeper* to defend the raw parts; after ſome weeks there iſſued again the like thin ſtinking humor as before, ſo that his *fleſh* began to waſt and his *ſpirits* to fail, which ſoon put a period to his miſerable life[i].

71. The wonderfull eſcapes of *death* that ſome men have made in this *County* muſt alſo be reckon'd amongſt the *remarkable accidents* that have attended them in the courſe of their lives. Amongſt which it was a very fortunate one, that happen'd to *John Dawe* of *Lapley* in this *County*, who as I was told upon the place, being a *Souldier* in the *Garriſon* there for the *King* in the late *Civil warr*, and commanded out upon a *Salley*, or as a *Scout*, found a

[h] *Obſervations of an ingenious Neighbouring Gentleman.* [i] *Mr. Ja. Illingworth and Mr Jonath. Newey's Narratives of this deplorable Caſe.*

horſhooe by the way which he ſtuck in his girdle ſo wonderfull happily, that in a *skermiſh* he fell into not long after, he received a ſhot juſt upon the *horſhooe*, which had it not been there, in all probability he had loſt his life: whereby he as evidently made good the Proverb, *that a little* Armour *well placed is as good as a whole* ſuit, as the *Gentleman* did in the unhappy expedition into the *Iſle* of *Ree*, who haveing but one *Jacobus* in his pocket, which luckily lay flat-ways againſt his belly, received a *ſhot* likewiſe juſt upon it, that bent it quite round, yet prevented any entrance into his body, and ſo ſaved his life[k].

72. Men have alſo been ſtrangely preſerved in the *Coal-pits* of this *Country*, whereof at *Wednesbury* I was told of two remarkable inſtances; one, of a *Man* of *Caſtle-Bromwich* who comeing to *Wednesbury* coal pits very early in the morning, two hours before day, having miſt his way, and guiding his *fore-horſe* by the head, unluckily fell *horſe* and all (the geers or harneſs breaking off) down into a *Coal-pit* 20 yards deep: yet had ſo little harme, that both *horſe* and *man* were drawn out again ſo well, that the *horſe* drew his part of the *load*, and the *man* (after 3 houres reſt in a bed, whereby he recoverd that little diſtraction the fall had given him) waited on his *team* home the ſame night. The other inſtance is of one *Daſhfield* a Coalier of *Wednesbury*, who being ſearching for *coal* in ſome old hollows, and wanting *Air*, repaired to an old *ſhaft* that had been fill'd up ſome years before, where looſening ſome earth at the bottom, in hopes it would crack to the top, and give him Air; it ſo ſuddenly coped or colted down upon him, that being on every ſide inviron'd with it, he could not return, inſomuch that all people concluded him ſmotherd. But he (whil'ſt they debated how to get him out) by the help of his *Maundrill*, by degrees ſo wrought away the earth over head, and getting it under his feet ſo raiſed himſelf ſtill higher and higher, that at length he came out above ground ſafe and ſound, having work't thus upwards at leſt 9 yards in an houres time: which even the people thereabout who underſtand theſe *works*, look upon to this day as ſo ſtrange performance, that the *Man* (now living) is ſtill call'd *Witch Daſhfield*.

73. But of all the *preſervations* of the life of *Man* that ever happen'd in this *County*, or perhaps any where elſe, wherein the providence of *God* appear'd moſt miraculouſly, was that of his ſacred *Majeſty* of ever bleſſed memory King *Charles* the ſecond, and of many of his *followers* that came along with him from the battle of *Worceſter*: who though he firſt allighted about break of day at

[k] *Ja. Howell's familiar hiſtorical Letters.*

White

White-Ladies in *Shropſhire*, whither he was conducted by Mr. *Charles Giffard* a Gent. of the ancient family of *Chillington* in this *County*, yet as ſoon as he was diſrobed of his *Princely* Ornaments, and had otherwiſe diſguiſed himſelf by a *Country* habit of one of the *Penderells*; cuting off his hair: and rubbing his *hands* againſt the back of the *Chimney*, and with them his *face*; he was conducted firſt by *Richard Penderel* out at a back door, into the obſcureſt part of *Rinſhaw* wood or ſpring Coppice in this *County*, where he was ſhelter'd from the rain (the Heavens weeping bitterly at theſe calamities) ſitting upon a blanket borrowed of *Francis Yates*, under one of the thickeſt *trees* in the wood, which not being well noted has loſt the honor, that was after given the *Oak* near *Boſcobel* houſe; whither (after an unfortunate journey to *Madeley* in order to paſs the *Severn*, and ſo into *Wales*) his *Majeſtie* removed two days after, and ſate in the *Oak*; which though in the *County* of *Salop* yet even there he reſted in the Lap of a *Staffordſhire* Gent. Collonel *William Carlis* of this Neighborhood, who having conſtantly followed his *Majeſties* fortunes, with much difficulty had alſo made his eſcape from *Worceſter*.

74. Having reſted at *Boſcobel* two days, one in the *Oak*; the night in a *privacy* behind the *Chimney* in one of the Chambers; and the other in the houſe and garden; the night following he removed to *Moſeley* to the houſe of the loyal Mr. *Thomas Whitgreave* of this *County*, where he was better accomodated with Linnen, and attended by Mr. *Whitgreave* Mr. *Huddleſton* and my Lord *Wilmot* who met him there: the ſeveral paſſages during his ſtay here were many of them remarkable, whereof I received an account from Mr. *Whitgreave* himſelf, which being punctually the ſame with thoſe in the book call'd *Boſcobel*, or *Clauſtrum Regale reſeratum*: I remit the *Reader* thither[m]. Hence after two days ſtay he was removed to *Bentley* by the moſt loyal and faithfull Collonel *John Lane*, purſuant to a reſolution taken up, that it was moſt expedient his *Majeſty* ſhould move *Weſtward* (the *Rebells* moſt probably purſueing him *Northward*) which they had contrived ſhould be done, under protection of a *paſs*, accidentally procur'd before by the Collonels Siſter Mrs. *Jane Lane*, for her ſelf and a man to goe beyond *Briſtol*, to ſee Mrs. *Norton* her ſpecial friend, then near her time of lyeing *in*.

75. Being now come to *Bentley*, whither my Lord *Wilmot* had removed before, and was now ready to receive him; after his *Majeſty* had eaten, and conferr'd with my *Lord* and the *Collonel* about his intended journey toward *Briſtol* next morning; he went

[m] *Boſcobel, or Clauſtrum Regale reſerat. part.* 1.

to bed; where he reſted not long being call'd up by the *Coll.* by break of day, who takeing away his leather doublet and patch't green breeches, now cloathed him with a Suit and Cloak of *Country* grey cloath like a *farmers* ſon, puting 20 pounds in his pocket to bear the charges of the journey[m]. Being thus accoutred, after he had refreſht himſelf and taken leave of the Lord *Wilmot*, he was conducted by the *Coll.* a back way into the *ſtable*, where after a few inſtructions how to act the part of a *Tenants* ſon (which they thought a quality more convenient for their intention, than that of a direct *ſervant*) he brought the horſe to the gate with his hat under his arme, having aſſumed the name of *William Jackſon*, and took up M^rs^. *Jane Lane* behinde him; and ſo in company with M^r^. *Henry Laſſels* and M^r^. *Peter* and his wife the *Collenels* Siſter, who were then accidentally at his houſe and were now goeing homewards, they took their journey toward *Stratford* upon *Avon*, taking leave of *Bentley*; which having been the Royal *Aſylum* of ſo great a *Prince* in his extremeſt diſtreſs, and now the Seat of the Worſhipfull *Tho. Lane*, Eſq; (one of the nobleſt *Patrons* of this work) ſon of that great example of fidelity and loyalty Coll. *John Lane*, is here repreſented *Tab.* 27. in a *copper* Cut, that the memory of it might be made as laſting as the *braſs*.

76. For which ſignal ſervices his *Majeſtie* upon his wonderfull reſtoration to his Kingdoms in *An.* 1660. did not only remunerat all perſons concern'd in his miraculous preſervation with Royal penſions, payable out of the *Exchequer*, proportionable to each mans quality and ſervice: but honored this *Gent.* more eſpecially (as he did *Coll. Carlos*) even after his death with a *Royal badg* or acknowledgment, of his loyalty and fidelity, by adding to his coat Armour a *Canton* of *England*, to be ſet up and uſed in memory of them by his *Poſterity* for ever; and out of his ſingular gratitude to him, would have had his body buryed amongſt the *Kings* at *Weſtminſter*, had not this *Heroe* before his death moſt modeſtly refuſed it. All which appears from the *Letters Patents* and warrants of the *King*; *Earl Marſhal*; *Kings* and *Heralds* at Armes; and the *Epitaph* upon his ſtately *Tomb* at *Wolverhampton*, ſet up by the Worſhipfull *Tho. Lane* Eſq; ſon and heir of his *virtues* as well as *Eſtate*: which for the ſingularity and further notoriety of the thing are here annext.

TO all and ſingular to whom theſe preſents ſhall come. We the Kings, Heralds, *and* Purſuivants *of Armes, ſend greeting. Whereas the right Honorable* Henry *Earl of* Peterborrow, *Deputy with his* Majeſties *approbation to the right Honorable* Henry *Earl*

[m] *Ex Chartularia familiæ de Lane MS. penes Tho. Lane Armig.*

of

ad pag: 308.

To the Worp.ll the
Loyal & wrich Yeom.n Gent.
THOMAS'S IRNE
of BEYTHELL Esq.
This 27. Table
Shewing the Southern Prospect
of BEATHELL Hall
His Ma.ties SEAT in his
greatest Extremity
as a grateful Recognition
of his many favours
is humbly presented
by

M Burghers delin. et sculp.

of Norwich *Earl* Marſhall *of* England, *hath under his hand and Seal of the Earle* Marſhalls *office, ſignifyed unto us his* Majeſties *royal will and pleaſure touching an* Augmentation *to the paternal* Armes *of* John Lane *of* Bentley *in the* County *of* Stafford *Eſq*; *lawfully iſſued, in theſe words.*

WHereas *the* Kings *moſt excellent* Majeſty *hath under his* Signet *and Signe* Manual, *ſignifyed unto me* Henry *Earle of* Peterborow, *Deputy* (*with his* Majeſties *approbation*) *to the right Honorable* Henry *Earle of* Norwich *Earl* Marſhall *of* England *his Royal pleaſure touching an* Augmentation *to the paternal Coat of the* deſcendants *lawfully iſſued from the body of* John Lane *of* Bentley *in the* County *of* Stafford *Eſq*; *in theſe words*;

CHARLES *R. To our right truſty and right well beloved Coſin and Councellor* Henry *Earl of* Peterborow, *Deputy to our right truſty and right well beloved Coſin* Henry *Earl of* Norwich *Earle* Marſhall *of* England, *greeting. We calling to mind the great and ſignal ſervice performed to us by* John Lane *of* Bently *in the* County *of* Stafford *deceaſed: in his ready concurring to the preſervation of our* Royal perſon *after the battle of* Worceſter, *at which time contemning the threatnings publiſht by the murtherers of our* Royal Father *againſt any who ſhould conceal or aſſiſt us, and diſdaining the rewards propoſed to ſuch as ſhould be inſtrumental in the diſcovery and deſtruction of our* Perſon, *and not valueing any hazard his* Family *might run: with the duty of an unſpotted* Allegiance, *did by his great* prudence *and* fidelity *ſo conduct us, that we were able at length to retire to places of ſafety beyond the* Seas; *have therefore of our own free will and proper motion given and granted unto the* deſcendants *lawfully iſſued from the body of the ſaid* John Lane *this Honorable* remuneration *as a notable* mark or badge *of his conſtant* fidelity: *that is to ſay, henceforth they ſhall bear in* augmentation *to their paternal* Armes, *three* Lyons *paſſant guardant* Or *in a Canton* Gu. *and our will and pleaſure is that you doe require and command our* Servants *the* Kings *and* Officers *of* Armes *to marſhall and ſet up in all proper places, and upon all occaſions the paternal* Armes *of the ſaid* John Lane *with the* Augmentation *aforeſaid*; *and that you alſo direct and require the* Regiſter *of our* College *of* Armes *to cauſe this our* Conceſſion *to be duly enter'd upon* Record *in our ſaid* College. *Given under our Royal* Signet *and ſigne* Manual *this* 12 *day of* July *An.* 1677. *and in the* 29 *year of our* Reigne.

By his Majeſties *Command.*

J. WILLIAMSON.

THeſe are therefore according to his Majeſties *Royal will and pleaſure, ſignifyed to me by his ſaid receited* Grant, *to will & require you the* Kings *and other* Officers *of* Armes *and every of you, to doe and perform from time to time as occaſion ſhall require all and every the* dutyes *and* ſervices, *which by his* Majeſtie *in and by his ſaid* grant *are ſignifyed and appointed to be done by you or any of you, for or on the behalf of the* deſcendants *lawfully iſſued from the body of the ſaid* John Lane: *and for your ſo doeing theſe ſhall be to you and every of you a ſufficient* warrant. *Dated under my hand and the* Seal *of the Earle* Marſhalls *Office, this* 18th. *day of* July 1677. *and in* 29 *of his* Majeſties *reign.*

PETERBOROW.

KNow ye therefore that in purſuance thereof, we have cauſed the ſame to be Regiſtered *in the* Records *of our* Colledg, *and have* Marſhalled *the ſaid* Augmentation *with the paternal* Armes *of their* Family *viz. party per Feſs* Or *and* Azure *a Cheveron* Gu. *betwixt* 3 Mullets *counterchanged of the* field. *Given under the common* Seal *of the* College *of* Armes *this* 21 *day of* July *in the* 29 *year of the reign of our Sovereign Lord* Charles *the Second,* Annoque Domini 1677.

Which Armes *are ſet up, together with the* Augmentation, *upon a noble* Monument *erected in his memory in the North* Iſle *of the* Collegiat Church *of* Wolverhampton *amongſt others of the* Family, *with the following* Epitaph.

Mortales Exuviæ
Prævalidi Johannis Lane *Armigeri*
Fæliciter reanimari expectantes
hic repoſitæ.
Vir ſupra Titulos, vel cujus meritis
Tituli deſunt.
In turbis nuperis inteſtinis ſub Rege Car. 1
Et deinde in bello Batavo *ſub Rege* Car. 2.
Tribuni *militum digniſſime officio fungebatur.*
Regis & Patriæ *Liberator.*
Nempe cum Car. 2. *e præliis* Vigorniis
Ægerrime elapſum & undique inſectatum
Summa pietate, ſumma fide, ſumma virtute,
ultimo denique Capitis *periculo,*
Iniquis Tyranni *uſurpantis, & ſuorum inſidiis*
Fortiter eripuit.

Factum

Factum inter præclariſſima
præclariſſimum;
Ut ipſe Monarcha *etiam non tacite agnovit*
Cum Augmentatione *Regali ex inſigniis* Regiis
Ad inſignia antiqua nobilis L A N. Familiæ
Filium T H O. L A N E (digni Patris dign. Hær.)
In loco defuncti decoravit & retribuit.
Cujus oſſa inſuper Rex *gratus & pius*
In Mauſoleis Baſilicis Weſtmonaſt.
Amoris ergo munifice condi voluit
Ni ipſe Heros *moriens iſtis honoribus*
Modeſte obſtetiſſet.
Natus eſt VIII Kal. April. *A°. MDCIX.*
Et prid. Kal. Sept. *A°. MDCLXVII.*
Mortem obiit comploratam.

77. Many of his *Majeſties* followers were alſo wonderfully preſerved by the great prudence and fidelity of ſome of the *Inhabitants* of this part of the *County*: particularly the Lord *Wilmot* narrowly eſcaped at *Brewood* Forge, and *Coven* brook, by the care and conduct of *John Penderel* and *William Walker*, and was after faithfully conceal'd at *Brinsford* at M^r. *Huntbaches* houſe, and ſo at Mr. *Whitgreaves* at *Moſeley*, and laſtly at *Bentley* where he parted with the *King* when he went Weſtward. The Duke of *Buckingham*, Lord *Leviſton*, Collonel *Blague*, Mr. *Marmaduke Darcy*, and Mr. *Hugh May*, likewiſe found great fidelity in *Blore-park* whither they betooke themſelves by a by-way after they had quitted their Horſes, and received refreſhment at an obſcure houſe of Mr. *Geo. Barlow's*, the Duke changing habit with an honeſt workman he met in an adjoyning wood, in which diſguiſe by the aſſiſtance of M^r. *Barlow* and his wife, after ſome days he was conveyed by one *Nicholas Matthews* a Carpenter, into *Nottinghamſhire*. At the ſame time the Lord *Leviſton*, Coll. *Blague*, M^r. *Darcy*, and M^r. *May*, alſo diſguiſed themſelves and ſeverally ſhifted away; only Coll. *Blague* remained at M^r. *Barlows* houſe at *Blore-pipe*, where with M^rs. *Barlows* privity and advice he hid his *Majeſties George* under a heap of duſt and chips, whence it was conveyed through the truſty hands of Mr. *Robert Milward* of *Stafford* to Mr. *Iſaac Walton*, who conveyed it to *London* to Coll. *Blague* then in the *Tower*; whence eſcaping not long after, he carryed it with him beyond Seas, and reſtored it to his *Majeſties* own hands.

78. Having done with *Men* ſolitarily conſidered, come we next

to

to treat of ſuch unuſuall things as concern more than one of them; *Pliny* in his *Natural Hiſtory* has a large chapter, of examples of *Men* extreamly alike, where he inſtances in many that ſtrangely reſembled one another, though no way related in conſanguinity or affinity[n]: but I have long obſerved that it falls out moſt commonly in *brothers* and *ſiſters*, and then moſt indiſtinguiſhably when they happen to be *Twynns*, ſuch as *Matthew* and *Thomas Seal* of *Edingale* in this *County*, whom (if cloathed alike) as I am credibly informed, it is hard to diſtinguiſh. Yet ſcarce ſo difficult neither, as the Reverend *Henry Fairfax* D D. and fellow of *Magdalen College Oxon.* and his *Twynn* brother, who as he told me himſelf were ſo very like one another, that their neareſt *relations*, nay not their *Parents* themſelves, even when grown *Men*, could any way diſtinguiſh them: inſomuch that he ha's received conſiderable guifts from ſome of them, intended for his *brother*; and a diſpute would have been raiſed (had an *elder brother* to them both, dyed without iſſue) which ſhould have ſucceeded in the *Eſtate*; the *Midwife*, *Nurſes*, &c. having not well obſerved which was born firſt.

79. What concerns *Men* and *Women* joyntly together alſo belongs to this place, upon which account their marriages purely conſidered may be referr'd hither: amongſt which perhaps it may not be unworthy our notice, nor much beſide our purpoſe, that *William Overton* Biſhop of this Dioceſs marryed two wives, which lye buryed with him under the ſame *Tomb* in *Eccleſhal Church*: which how agreeable to the 1. *Tim.* 3. 2. let the *divines* determin. All I ſhall ſay concerning it is, that the *Apoſtle* ſeeming here to intimate that a *Biſhop* ſhould be chaſt in a higher degree than other *Chriſtians*, it cannot well be underſtood that a *Biſhop* here is only forbid to marry another wife after divorce from a former, which our *Saviour* forbids all *Chriſtians* whatever under the penalty of *Adultery*: but that it was not expedient at leſt, he ſhould marry a *ſecond* wife after the death of the *firſt*, though allowable in others. Which being conſonant to the 17 and 18 *Apoſtolical Canons*[o]; and the third *Canon in Trullo*[p]; ſeems to be the ſenſe of the *Church* too in this matter. *Theodoret* 'tis true did ordain *Irenæus* Biſhop of *Tyre* though a *Digamiſt* in this ſenſe, which action he defended in an Epiſtle to *Domnus* Patriarch of *Antioch*, where he names one *Diogenes*, and *Domninus* Biſhop of *Cæſarea*, that had been thus ordained though under the ſame circumſtances[q]. *Tertullian* alſo ownes that the *Canons* concern-

[n] *C. Plinii 2di. Nat. Hiſt. Lib. 7. cap. 12.* [o] *Vid Canones Sanct. Apoſt. Canon. 17. 18.* [p] *Vid Canones Concilii Sexti in Trullo. Canon. 3.* [q] *B. Theodoreti Operum Tom. 3. Epiſt. 110.*

ing

ing *Digamy* were not always obſerved, mentioning a Biſhop of *Uthina* at that time, that was a *Digamiſt* [r]. which poſſibly Biſhop *Overton* thought were inſtances ſufficient to juſtifie *Him*. Yet it was not even then the *Judgement* of the *Church*, the Emperor *Theodoſius* cauſing the ſame *Irenæus* to be depoſed for ſuſpicion of *Neſtorianiſme*, and *Bigamy*, as having been ordained againſt the *Canons* of the *Church* [s]. And *Tertullian* at the ſame time he owned that the *Canons* in this point had not been obſerved, confeſſing it ſeem'd contrary to the doctrine of the *Apoſtle*. *Quot enim* & Digami *præſident apud vos, inſultantes utique* Apoſtolo; *certè non erubeſcentes*, &c [t]. being his very words.

80. Hither alſo muſt be referr'd what concerns whole *families*, whereof I was told that at *Wheaten-Aſton* there were ten or twelve, all of a name [all *Sawyers*] hard to be diſtinguiſh't at *Lapley* Court, of which many of them hold; and at *Blymhill* there are many of the name of *Blackmoore* and *Turner*, who either upon account of *conſanguinity*, or interchangeable *marriages*, are moſt of them ſome way or other akin. I am alſo informed by the reverend and learnd Dr. *John Wallis*, Profeſſor of *Geometry* and *Preſident* of the *Philoſophical Society* of *Oxford*, that at *Thingdon* in *Northamptonſhire* (whence he is originally deſcended) there were not long ſince no leſs than 13 *families* of his owne name, who by *marriages* or otherwiſe, are all thus related. Yet I find not that theſe are ſo ſtrict in their *marriages*, that they care not to marry out of their own kinred, as I have heard of a place in *Spain* where all the inhabitants are thus related, that by no means will marry out of their own *Town*; and I am certainly informed by Mr. *John Hough* fellow of *Magd. Coll. Oxon*, and *Chaplin* to his Grace the Duke of *Ormond*, that in the Barony of *Forth* in the *County* of *Wexford* in *Ireland*, the inhabitants (who are Engliſh and have reſided there, ever ſince the conqueſt of *Ireland* by *Hen.* 2. ſtill retaining their now unintelligible *Engliſh*) are ſo ſtrict in this point, that they will not marry out of their own *diſtrict*, for the greateſt advantage.

81 *Townes* being made out of *families*, and the whole *County* out of *Towns*, all unuſual matters relating to either, as odd *Cuſtoms*, &c. moſt naturally follow: ſuch as that of the pariſh of *Gnoſall*, where the *Miniſter* and *Church-wardens*, annually chuſe a *Jury* of 12 Men or more, who not only joyn with them and the *ſide-men* in making the *preſentments* to the *Officiall* (it being a *peculiar*) but are impannell'd, and bring in their *Verdict* in all

[r] *Q. Sept. Flor. Tertulliani de Monogomia cap.* 12. *vel.* 13. [s] *Cæſ. Baronii Annalium Eccleſ. Tom.* 5. *in An.* 431. [t] *Vide ſupra loco citato.*

Eccleſiaſticall cauſes that fall out amongſt them for the year following. Which is the only inſtance where a *Civil Law* Judg determins according to the *Verdict* of a *Jury*, that ever I heard of; except in the caſe of *Pyracy* or robbing by *Sea*, it being provided by *act* of *Parliament*, cheifly becauſe *Mariners* and *Shippmen* (which were commonly the only *witneſſes* in theſe caſes) by reaſon of their frequent *voyages* doe not ſtay long on ſhore, and ſo could not eaſily be had, to the great damage of the *Proſecutors*; that in all Treaſons, Felonies, robberies, &c. committed upon the *Sea*, or any *Creek* or place within the *Admiralls* Juriſdiction, ſhall be tryed and judged in ſuch *ſhires* and places of the *Realm*, as ſhall be limited by the *Kings* Commiſſion directed to the *Admiral* or his deputy, and 3 or 4 other ſubſtantial perſons to be appointed by the Lord *Chancellor*, who ſhall enquire and determine of ſuch offence or offences, by the oaths of 12 good and lawfull inhabitants of the *Shire* limited in the *Commiſſion*, in ſuch like manner and form, as if ſuch offences had been commited on the *land*, in the ſame *ſhire*[v].

82. At *Walſhall* in this *County*, they have alſo at this day, an unuſual ('tis true) but a very good *cuſtom*, of diſtributing annually a certain *dole* of one peny and no more on *Twelfth Eve* to all perſons then reſiding within the Town or Burg of *Walſhall*; and in all the *Villages* and *Hamlets* belonging thereunto; *viz.* *Walſhall-wood*, *Shellfield*, great and little *Bloxwich*, *Harding*, *Goſcot*, *Woodend*, *Caldmoore*, *Beſcot*, the *Pleck*, and *Burch-hills*, which they call the *forraigne*: and not only to the *conſtant* Inhabitants of theſe places, but to all *Strangers* too then found in this *Town*, or within any of the aforeſaid *Villages* within the *Liberties* of it; whether young or old, rich or poor, Men women or children, of what quality or condition ſoever they be. This *dole-penny* is alſo given to all *perſons* then reſiding in the pariſh of *Ruſhall* under the ſame circumſtances, which upon this account is thought to have been formerly part of the *forraigne* of *Walſhall*. Which general benevolence they call *Moſeley's dole*, being given by one *Thomas Moſeley* an Inhabitant of this *Town* (who lived, as is ſuppoſed, at a houſe now one Mr. *Sheppards*, where they will ſhew you the heads of *Moſeley* and his *wife*) as *tradition* goes upon this account, *viz.* That the ſaid *Tho. Moſeley* walking the ſtreets of this *Town* on the *Eve* of *Epiphany*, heard a *child* crying for *bread* which raiſed his charity to ſuch a ſtrain, that he preſently vowed that no perſon hereafter of what condition ſoever, ſhould ever want *bread* in that *Town* or *Liberties* on that day again:

[v] *Ferd. Pulton's Collect. of Statutes* 28. *Hen.* 8. *chap.* 15.

where-

whereupon he immediatly ſetled his Manor of *Baſcot* in *Warwick-ſhire* upon the *Corporation* for ever, for the uſe abovemention'd.

83. But the truth of the matter ſeems rather to be, that this ſettlement (which he made by deed of *feoffment* dated on S^t. *Nicholas* day 30 of *Hen.* 6. granting it to *William Lyle* and *Thomas Magot* for the uſe of the *Town*[w]) was for maintenance, in part at leſt, of an *obit* for his ſoule and the ſoule of his wife *Margaret*, to be celebrated in the *Pariſh-Church* here, and in the *Abbey* of *Hales-Owen*; it appearing by the accounts of *Tho. Nowell* 30 *Hen.* 8. one of the *Maſters* of the *Guild* of S^t. *John Baptiſt* (whereof there were three) who received the *Rents* and kept the *Courts* at *Baſcot*, but made their accounts to the *Major*; that he claymed an allowance of 13^s. 4^d. upon his account for that *Dole*, paid to S^r. *John Dudley* poſſeſſor of the Eccleſiaſtical rights of the *Monaſtery* of *Hales-Owen* to procure an *Anniverſary* to be performed by the religious men of that houſe, for the ſoules of *Thomas Moſeley* and *Margaret* his wife; and that he claimed allowance of 15^s. 4^d. for the like *Anniverſary* in the *pariſh Church* of *Walſall*, which ſeems to have been all was paid out of it, though another *paper* alſo mentions *nine marks* paid annually to the *Abbey* of *Hales-Owen*[x], the reſt of the Income wholy accrewing to the benefit of the *Town*, which they ſince converted to the maintenance of this yearly *benevolence*, there being no ſuch *dole* given or inſtituted by *Moſeley* either by *will* or *Feoffment*, nor any mention made of it till the 30 of *Hen.* 8. when 7^lb. 10^s. 9^d. diſcharged it all.

84. However the *Corporation* by way of *Gratitude*, he having indeed given the *Eſtate* which maintain'd it, call'd it *Moſeleys* Dole, ſending the *Bell-man* about the *Town* that day, to excite the people to repair to *Church* to pray for the ſouls of *Thomas Moſeley* and *Margaret* his wife, upon which account it was quickly after ſeized by the *Crown*, as all other lands were, eſteemed any way to be put to ſuperſtitious uſes; where it continued to the 28 of Q. *Elizabeth* (yet was ſtill rented by the *Town* for the uſe of the *dole*) when it was given by the *Queen* to S^r. *Jacob Crofts* Controller of her houſhold, who ſold it to one *Shaw* and *Headock* Eſq; and they again to the *Mayor* and *Communalty* of *Walſhall*, who poſſeſs it to this day, and put as much of it to the ſame uſe, as the number of perſons both in the *Burg* and *Foraigne*, and pariſh of *Ruſhall*, require, which commonly now amounts to about two or three and twenty pounds, the whole *manor* yeilding them a hundred pounds *per Annum*, or thereabout[y].

[w] Sr. *William Dugdales Antiquities of Warwickſhire illuſtrated in Baſcot.* [x] *Ex ipſis Autog. penes Majorem & Burgenſ. de Walſhall.* [y] *Ibidem.*

85. To these add the *Customs* relating to the *County*, whereof they have one, of admitting Men into the *Society* of *Free-masons*, that in the *moorelands* of this *County* seems to be of greater request, than any where else, though I find the *Custom* spread more or less all over the *Nation*; for here I found persons of the most eminent quality, that did not disdain to be of this *Fellowship*. Nor indeed need they, were it of that *Antiquity* and *honor*, that is pretended in a large *parchment volum* they have amongst them, containing the *History* and *Rules* of the craft of *masonry*. Which is there deduced not only from *sacred writ*, but *profane story*, particularly that it was brought into *England* by S^t. *Amphibal*, and first communicated to S^t. *Alban*, who set down the *Charges* of *masonry*, and was made paymaster and Governor of the *Kings* works, and gave them *charges* and *manners* as S^t. *Amphibal* had taught him. Which were after confirmed by King *Athelstan*, whose youngest son *Edwyn* loved well *masonry*, took upon him the *charges* and learned the *manners*, and obtained for them of his Father a *free-Charter*. Whereupon he caused them to assemble at *York*, and to bring all the old *Books* of their *craft*, and out of them ordained such *charges* and *manners*, as they then thought fit: which *charges* in the said *Schrole* or *Parchment volum*, are in part declared: and thus was the *craft* of *masonry* grounded and confirmed in *England*. It is also there declared that these *charges* and *manners* were after perused and approved by King *Hen.* 6. and his *council*, both as to *Masters* and *Fellows* of this right Worshipfull *craft*[2].

86. Into which *Society* when any are admitted, they call a *meeting* (or *Lodg* as they term it in some places) which must consist at least of 5 or 6 of the *Ancients* of the *Order*, whom the *candidats* present with *gloves*, and so likewise to their *wives*, and entertain with a *collation* according to the Custom of the place: This ended, they proceed to the *admission* of them, which cheifly consists in the communication of certain *secret signes*, whereby they are known to one another all over the *Nation*, by which means they have maintenance whither ever they travel: for if any man appear though altogether unknown, that can shew any of these *signes* to a *Fellow* of the *Society*, whom they otherwise call an *accepted mason*, he is obliged presently to come to him, from what company or place soever he be in, nay tho from the top of a *Steeple*, (what hazard or inconvenience soever he run) to know his pleasure, and assist him; *viz.* if he want *work* he is bound to find him some; or if he cannot doe that, to give him *mony*, or o-

2 *Ex Rotulo membranaceo penes Cementariorum Societatem.*

therwise

therwiſe ſupport him till *work* can be had; which is one of their *Articles*; and it is another, that they adviſe the *Maſters* they work for, according to the beſt of their *skill*, acquainting them with the goodneſs or badneſs of their *materials*; and if they be any way out in the *contrivance* of their *buildings* modeſtly to rectify them in it; that *maſonry* be not diſhonored: and many ſuch like that are commonly known: but ſome others they have (to which they are *ſworn* after their faſhion) that none know but themſelves, which I have reaſon to ſuſpect are much worſe than theſe, perhaps as bad as this *Hiſtory* of the *craft* it ſelf; than which there is nothing I ever met with, more falſe or incoherent.

87. For not to mention that S^t. *Amphibalus* by judicious perſons, is thought rather to be the *cloak*, than *maſter* of S^t. *Alban*; or how unlikely it is that S^t. *Alban* himſelf in ſuch a barbarous Age, and in times of perſecution, ſhould be *ſupervifor* of any *works*; it is plain that King *Athelſtan* was never marryed, or ever had ſo much as any natural iſſue; (unleſs we give way to the fabulous *Hiſtory* of *Guy* Earl of *Warwick*, whoſe eldeſt ſon *Reynburn* is ſaid indeed to have been marryed to *Leoneat* the ſuppoſed daughter of *Athelſtan*[a], which will not ſerve the turn neither) much leſs ever had he a lawfull ſon *Edwyn*, of whom I find not the leaſt umbrage in *Hiſtory*. He had indeed a *Brother* of that name, of whom he was ſo jealouſe though very *young* when he came to the crown, that he ſent him to *Sea* in a *pinnace* without *tackle* or *oar*, only in company with a *page*, that his death might be imputed to the *waves* and not *him*; whence the Young *Prince* (not able to maſter his paſſions) caſt himſelf headlong into the *Sea* and there dyed. Who how unlikely to learn their *manners*; to get them a *Charter*; or call them together at *York*; let the *Reader* judg.

88. Yet more improbable is it ſtill, that *Hen.* the 6. and his *Council*, ſhould ever peruſe or approve their *charges* and *manners*, and ſo confirm theſe right Worſhipfull *Maſters* and *Fellows* as they are call'd in the *Scrole*: for in the third of his reigne (when he could not be 4 years old) I find an *act* of *Parliament* quite aboliſhing this *Society*. It being therein ordained, that no *Congregations* and *Confederacies* ſhould be made by *maſons*, in their general *Chapters* and *Aſſemblies*, whereby the good courſe and effect of the *Statutes* of *Labourers*, were violated and broken in ſubverſion of *Law*: and that thoſe who cauſed ſuch *Chapters* or *Congregations* to be holden, ſhould be adjudged *Felons*; and thoſe *maſons* that came to them ſhould be puniſht by *impriſon-*

[a] *Joh. Rouſe's Hiſt. of Guy E. of Warw.*

ment, and make *fine* and *ranſom* at the *Kings* will [b]. So very much out was the *Compiler* of this *Hiſtory* of the *craft* of *maſonry*, and ſo little skill had he in our *Chronicles* and *Laws*. Which *Statute* though repealed by a ſubſequent *act* in the 5 *of Eliz.* [c]: whereby *Servants* and *Labourers* are compellable to ſerve, and their *wages* limited; and all *maſters* made puniſhable for giving more wages than what is taxed by the *Juſtices*, and the *ſervants* if they take it &c. [d]. Yet this *act* too being but little obſerved, 'tis ſtill to be feared theſe *Chapters* of *Free-maſons* do as much miſcheif as before, which if one may eſtimate by the penalty, was anciently ſo great, that perhaps it might be uſefull to examin them now.

89. They have alſo a *Cuſtom* in this *County* which I obſerved on *holy-Thurſday* at *Brewood* and *Bilbrook*, of adorning their *wells* with *boughs* and *flowers*: this it ſeems they doe too at all *Goſpell-places*, whether *wells*, *trees*, or *hills*: which being now obſerved only for decency and cuſtom ſake, is innocent enough. Heretofore too it was uſual to pay this *reſpect* to ſuch *wells* as were eminent for cureing *diſtempers*, on the *Saints* day whoſe name the *well* bore, diverting themſelves with *cakes* and *ale*, and a little *muſick* and *danceing*; which, whil'ſt within theſe bounds, was alſo an innocent recreation. But whenever they began to place *Sanctity* in them, to bring *alms* and *offerings*, or make *vows* at them, as the ancient *Germans* [e] and *Britans* [f] did, and the *Saxons* and *Engliſh* were too much inclined to, for which S^t. *Edmunds* well without S^t. *Clements* near *Oxford*, and S^t. *Laurence's* at *Peterborough* were famous heretofore [g]: I doe not find but they were forbid in thoſe times, as well as now, this ſuperſtitious devotion being call'd Wilpeonþunga which *Somner* rightly tranſlates *well-worſhip* [h], and was ſtrictly prohibited by our *Anglican Councills* as long agoe as King *Edgar* [i]; and in the reign of *Canutus* [k]; not long after again in a *Councill* at *London* under S^t. *Anſelm* Arch-Biſhop of *Cant.* An. 1102 [l]. as it was alſo particularly at thoſe two *wells* near *Oxford*, and at *Peterborough* by *Oliver Sutton* Biſhop of *Lincoln* [m].

90. Thus having run through the many and moſt uncommon paſſages that I could find to have attended Mankind in this

[b] *Ferd. Pulton's Collect. of Statutes.* 3. *Hen.* 6. *Chap.* 1. [c] *Lord Cooks Inſtitutes of the Laws of Engl. part.* 3. *chap.* 35. [d] *Ferd. Pulton's Collect. of Statutes.* 5. *Eliz. chap.* 4. [e] *Phil. Cluverii Germania Antiq. Lib.* 1. *cap.* 34. [f] *Joh. Seldeni Marmora Arundel. in notis ad Auctorioli V.* [g] *In Regiſtro Sutton, in Officio Regiſtrarii Eccleſiæ Lincoln. fol.* 8. [h] *Gul. Somneri Dictionarium Saxonico-Angl in verbo.* [i] Ap. *Lambardi in Canonibus ſub. Edgaro. Canon* 16. [k] *Hen. Spelmani Conciliorum Tom.* 1. *inter Leges Eccleſ. Canuti Regis part.* 2. *cap.* 5. [l] *Phil. Labbei Conciliorum Tom.* 10. *ad An. Chr.* 1002. [m] *Vide locum ſupra citatum.*

County

County, at or before his *birth*; and during the *course* of his *life*; both ſeparately, and in conſort: I ſhould immediatly in the next place have proceeded to thoſe of *death* and the *grave*, but that I muſt not forget a certain forerunner of them, *Extreme old age*: which whether not much abated now in the wane of the world, has been a *Queſtion* much controverted in theſe latter ages. In the ſtating whereof, I think I may fairly exclude the *Antidiluvian Patriarchs*, and *thoſe* after the flood, till about *Jacobs* time, whoſe lives no queſtion God did protract to a much greater length than ours are now, for the firſt *peopleing* of the *world*, and *repleniſhing* it again after its *deſtruction*: which being done, the common age of Man ſeems to have been limited to the ſtandard, *of threeſcore years and ten*, or thereabout; and *if by reaſon of ſtrength* [ſome] *came to fourſcore years, yet their ſtrength* [then] *was but labour and ſorrow* [n]; as it continues to this day. Some indeed there were then that exceeded that *period*, and ſo there have been ſtill in all *times* and *Nations* down even to this laſt age, that have outrun it as much as ever the ancients did, ſince *Jacobs* days, as will be found by the agreement of the *Hiſtories* of our *forefathers*, whether ſacred or profane, with what I have met with relating to this *ſubject* in our days; though I confine my ſelf within the narrow bounds, cheifly of this, and two or three other *Engliſh Counties*.

91. In the collation of which inſtances, I ſhall give the civility of precedence as heretofore to the *Women*, notwithſtanding the holy *Penmen* ſeem to have neglected their ages, not ſo conſtantly ſetting them down, as thoſe of Men. *Sarah* 'tis true is recorded to have been 127 years of age [o], but ſhe was the *Grandmother* of *Jacob*, and ſo not within the time ſince when we affirm, there has been no abbreviation of the *Longevity* of Man: however I think we ſhall be able to bring a parallel even to her within memory. *Anna* the *Propheteſs*, as may be collected from S^t. *Luke*, ſeems to have arrived to a hundred and ſix years of age, or thereabout [p]. And in profane Hiſtory we find it noted that *Helena* the mother of *Conſtantine* the great, was fourſcoure years old*; and that *Pliny* thought it worthy remark, that *Livia* the wife of *Rutilius* lived to 97; and *Statilia* a noble Roman Lady to 99 years of age [q]; which yet both are exceeded by one M^rs. *Swynbourn* of *Yoxall* in this *County*, who was living when I was there, and upwards of an hundred; as they were alſo by a long Catalogue of *Italian* Women (as well as men) reckoned up by

[n] *Pſal.* 90. *v.* 10. [o] *Gen.* 23. *v.* 1. [p] *Luke* 2. *v.* 36. 37. * *Lord Bacons Hiſt. of life and death p.* 17. [q] *C. Plinii* 2^di. *Nat. Hiſt. Lib.* 7. *cap.* 48.

Phlegon,

Phlegon, who all reach't an *hundred*[r]. So much were they out, who fixt the great *Climacterical* 63 (or *Androclan* of the *Egyptians*) as the ultimate term of human life[s]; and so were *Plato*, who thought it consummated in 81 being the *square* of 9[t]; and *Staseas* in 84[u], which *Herodotus* also calls ζωῆς πλῆθος[w]; to whom add *Hesiod*[x], and after him *Ausonius* who advanced it to 96, which period of years they thought none could surpass[y].

92. Nor were the *Egyptians* of *Alexandria*[z], or *Gaius* the *Civilian*[a], who thought no person could exceed 100 years, less deceived than the former: for beside that *Phlegon* has collected so many (whereof part are women) who survived that date, that their very *names* fill a whole *Chapter*[b]; there was one Mrs. *Hill* of *Kidlington* in *Oxfordshire*, that was born and lived there above 100 years[c]; *Ann Scot* of *Ashley* in this *County* was above 100 when I was there, and Dr. *Lister* acquaints us that one *Frances Woodworth* of *Charlton* in *Yorkshire*, dyed in 1662 of the age of 102, and some odd months[d]; not wanting much of the age of *Terentia* the wife of *Cicero* who was 103; or of *Galeria Copiola* an actress on the stage in the days of *Pompey*, who was 104[e]; who yet both fell short of one *Elizabeth Payne* of *Gnosall* in this *County*, who was 105 and living when I was there in 1680, and perhaps by this time may have arrived to near the age of *Anna* the *Propheteſs*; who was not so old as *Mary Allenson* of *Thorley* in the parish of *Skipton* in *Yorkshire*, who dyed as the same Dr. *Lister* informs us in 1668 aged about 108[f]; to which very year one *Demetrius* in *Plutarch*, that he might include the *longevity* of such persons as these, yet inlarged the limits of human life; appointing 54 for the increase of strength, and as many for its declension, founding his notion upon this, that each 54 was compounded, *ex unitate, primis duobus planis, duobus quadratis, & duobus cubis*[g], which possibly might be 1, 4 6, 4 4, 8 27, these making up the *number*, though some of them may not be so properly assigned.

93. But this seems altogether as insufficient a boundary as any of the rest: for I was told of one Goodwife *Nip* that lived near *Gentle-Shaw* in this *County* that was 109; and I know one Good-

[r] *Phlegontis Tralliani Lib. de Longævis cap.* 1. [s] *Censorini Lib. de die Natali. cap.* 14. [t] *Ibidem.* [u] *Ibidem.* [w] *Herodoti Historiar. Lib.* 3. [x] *C. Plinii* 2^di. *Nat. Hist. Lib.* 7. *cap.* 48. [y] *Dec. Ausonii Idyllio* 10. *vel.* 18. [z] *Censorini Lib. de die Natali cap.* 17. & *Plinii* 2^di. *Nat. Hist. Lib.* 11. *cap.* 37. [a] *ff. de usufructu. Leg. Ususfructus, sive D. Lib.* 7. *Tit.* 1. *Leg.* 56. [b] *Phleg. Trall. Lib. de Longæv. cap.* 2. [c] *Nat. Hist. of Oxfordsh. Chap.* 2. § 3. [d] *Philosoph. Transact. Numb.* 160. [e] *C. Plinii* 2^di. *Nat. Hist. Lib.* 7. *cap.* 48. [f] *Philos. Trans. loco. supra citat.* [g] *Apud Plutarchum* περὶ τῆς ἐκλείψεως τῶν χρησμῶν.

wife

wife *George* of the City of *Oxon* now living, who is of the ſame age; but one year younger than *Munantia Procula*, and *Polla Donata* of *Bononia* noted by *Phlegon* [h], or *Samula* mentioned by *Pliny* out of *Aſconius Pædianus*: that all lived to 110. Who alſo acquaints us, that *Clodia* the wife of *Oſilius* arrived to 115 [i], in which very year of her age *Katharin Millard* abovemention'd [k], unfortunatly dyed in the *Thruſhouſe* near *Peakſtones* in this *County*, where ſhe might otherwiſe in all probability have lived ſomewhat longer. To take in ſuch *Macrobians* as theſe, *Beroſus* yet advanced the term of mans life to 117 [l], but to as little purpoſe as the former: for *Phlegon* mentions one *Julia Modeſtina* living in his time at *Breſſello* in the Dukedom of *Modena* 120 years old [m]; of which very age I ſaw one *Ann Harvey* at *Okeymoor* (but born at *Ellaſton*) in this *County*; and I was told of one Goodwife *Eſtwick* of one of the *Oultons*, who had not been dead above 2 years before I came there, that was of the ſame age.

94. Upon account of ſuch inſtances as theſe, certain *Mathematicians* mention'd by *Trebellius Pollio* enlarged the period to 120. *Doctiſſimi Mathematicorum* (ſays he) *centum viginti annos homini ad vivendum datos judicant, neque amplius cuiquam conceſſum dicunt* [n]. With whom agreed the Oracle of *Sybilla Eythræa* according to *Phlegon*, in whoſe tract *de Longævis* I find theſe verſes.

Viginti & centum *revolutis protinus annis*
Quæ ſunt humanæ longiſſima tempora vitæ [o].

both whom *I* find yet were alſo deceived as well as the reſt: for I heard of a maid that lived at *Stafford-green*, whoſe diet was cheifly ſcraped cheeſe, ſugar, and brown bread, that lived to the age of 122. the very year to which *Epigenes* the *Aſtrologer* affirm'd (as *Pliny* tells us) it was not poſſible for any body to live [p]. Wherefore *Petoſiris* and *Neſepſos*, grounding their calculation upon their *Tetartemorion* or *Quadrant*, more wiſely determin'd that human life might be protracted to 126 years, but not further [q]: which yet we ſee confuted in the life of *Sarah*, who was 127 [r]; and of *Marſli Stent* of *LLanſilin* in *Denbyſhire*, who as I am credibly informed dyed lately about 1680. aged 132. And *Pliny* himſelf tells us of a woman of *Faventia* who lived to 132; and of another named *Tertulla* who was known (he ſays) to be 137 years of Age [s].

95. Wiſer yet was *Aſclepiades* and his *Sect* of *Aſtologers*, who

[h] *Phlegontis Tral. Lib. de Longævis cap.* 2. [i] *Loco ſupra citato.* [k] *Chap.* 4. §. 40. [l] *C. Plinii* 2^di^. *Nat. Hiſt. Lib.* 7. *cap.* 49. [m] *Lib. de Longævis cap.* 3. [n] *Treb. Pollio in vita Divi Claudii ad Conſtantium.* [o] *Lib. de Long. cap.* 4. [p] *C. Plinii* 2^di^. *Nat. Hiſt. Lib.* 7. *cap.* 49. [q] *Ibidem.* [r] *Gen.* 23. *v.* 1. [s] *Loco ſupra citato.*

tho they affirmed the length of human life did depend on the influence of the *ſtarrs*, yet touching the utmoſt term thereof would ſet down nothing definitively; leſt it ſhould be exceeded ſome time or other, by ſome rare *example* of human *Longevity*[t]: as all hitherto mention'd have been, by the old *Counteſs* of *Deſmond*, who as S^r. *Walter Raleigh* ſays (who knew her well) was married in *Edward* the fourths time, and lived to the year 1589, and many years after[v]; and was reputed (as my Lord S^t. *Alban's* further acquaints us) 140 years old[w]. How old *Mary Cooper* was of *Kings Bromley* in this *County*, not long ſince dead, I could not certainly learn, but ſure ſhe muſt be a very old woman, for ſhe lived to be a *Beldam*, that is to ſee the ſixt generation, and could ſay the ſame I have heard reported of another viz. *Riſe up daughter, and goe to thy daughter, for thy daughters daughter hath a daughter*: whoſe eldeſt daughter *Elizabeth* now living is like to doe the ſame, there being a female of the fift generation near marriageable, when I was there. Which is much the ſame that *Zuingerus* reports, of a Noble *Matron* of the family of the *Dalburges*, deſcended of the *Camerarii* or *Chamberlains* of *Worms*, in the Arch-Biſhoprick of *Ments*, who could thus ſpeak to her daughter, as the ſame *Zuingerus* gives it us in a *Latin* diſtic.

1 *Mater ait* 2 *natæ*, *dic* 3 *natæ filia*, 4 *natam*
Ut moneat, 5 *natæ plangere* 6 *filiolam*[y].

that is, the Mother ſaid to her daughter, daughter bid thy daughter tell her daughter, that her daughters daughter crys.

96. Nor have theſe limits of human life been leſs tranſgreſst by *Men*, in all times and nations, than they have by *women*; which will eaſily be made appear alſo, by a ſhort compariſon of the *ages* of *men* taken out of the ſacred and profane Hiſtories ſince *Jacobs* days, with thoſe of our own time. For firſt, if we look into the *Scriptures* begining as low as *Solomon*, and runing up as high as *Jacob*, which takes in about 700 years; we ſhall find that *Solomon*, tho' his age cannot be certainly determind by *holy writ*, yet thoſe that aſſigne him the greateſt number of years, think that he paſs't not above 50 or 60 at moſt: yet it is ſaid of him when he was *old*, that his wives turned away his heart after other *Gods*[z]. And as D^r. *Hake-*

[t] *Ibidem.* [u] S^r. *Walter Raleighs Hiſt. of the World, Book* 1. *part.* 1. *Chap.* 5. §. 5. [w] *Lord Viſc* S^t. *Albans Nat. Hiſt. Cent.* 8. *Experim.* 755. [x] *Ric. Verſtegan's reſtitution of decayed Antiquities Chap.* 10. *p.* 253. [y] *Theodori. Zuingeri Theatri humanæ vitæ vol.* 3. *pag.* 1057. [z] 1. *Kings.* 11. 4.

will

will notes, of all the Kings of *Judah* and *Jeruſalem* who ſucceeded him, the greateſt part came not to 50, very few to 60, none full home to 70[a]. King *David* indeed was threeſcore and ten when he dyed[b], upon which account he was ſtiled *old* (as men are now at that age) *ſtriken in years*[c], and *full of days*[d], inſomuch that when they cover'd him with cloathes he gat no heat. And his good Subject *Barzillai*, whom the *Scriptures* term a very aged man, yet even he, by his own confeſſion, was but fourſcore years old[e]. *Joſhuah*, and *Joſeph* each lived 110[f], and *Moſes* and *Aaron* each 120[g], *Levi* brother to *Joſeph*[h], and *Amram* father to *Moſes* and *Aaron* were both 137[i]. And *Jacob* himſelf was but 147 years old[k].

97. Which ages if compared with thoſe above 1000 years after, and thoſe of the preſent times, we ſhall find matters ſtanding then and now (as to this particular) in much the ſame poſture: *the days of our years* (as *Moſes* ſays) *being* ſtill *threeſcore and ten*, which when any by reaſon of ſtrength have exceeded, they have always been noted (juſt as *Barzillai*) for very old men. Thus it hath been recorded as remarkable, that *Solon* the Law giver; *Anacreon* the Poet, and the Emperor *Gordian* the elder; arrived to 80 years; *Plato* the *Athenian* to 81; *Valerian*, and *Anicius Juſtinian* the Emperors to 83; S[t]. *Luke* the Evangeliſt to 84; *Anaſtatius Dicorus* to 88; *Protagoras* of *Abdera*, old *Simeon* in the time of our Saviour, S[t]. *Hierom* and *Dionyſius Areopogita*, to 90; and S[t]. *John* the beloved diſciple of our Lord, to 93. Which are ages ſo common even now, that as my Lord *Bacon* affirmes, there is ſcarce a village in *England*, that is tolerably populous, but it affords a man or woman of 80, or upwards[l]; and M[r]. *Carew* in his ſurvey of the *County* of *Cornwall* aſſures us upon his own knowledg that fourſcore, and foureſcore and ten years of age, is ordinary there almoſt in every place[m]. Wherefore I have not cited my *Authors* for the ages above mention'd, the preſent ages of men rendering them ſo credible, that it ſeems altogether needleſs.

98. To proceed therefore to men of yet greater Longevity, *Zeno* of *Citium*, *Iſocrates* the *Athenian*[n], and *Marcus Perpenna* according to *Pliny*, lived 98 years; and *Marcus Valerius Corvinus* 100 complete[o]; and ſo did a great number of others, *Italians* only, reckond up by *Phlegon*[p]. *Pliny* further adding that in

[a] *Dr. Hakewill's Apologie, Lib. 3. Sect. 4.* [b] *2. Sam. 5. 4.* [c] *1. Kings 1. 1.* [d] *1. Chron 29. 28.* [e] *2. Sam. 19. v. 32. 35.* [f] *Judges. 24. 29. and Gen. 50. 26.* [g] *Deutr. 34. 7.* [h] *Exod. 6. 16.* [i] *Exod. 6. 20.* [k] *Gen. 47. 28.* [l] *Lord. Bacon's Hiſt. of life and death. p. 20.* [m] *Carew's ſurvey of Cornwall, Book. 1. p. 63.* [n] *Lord Bacon's Hiſt. of life and death. p. 16.* [o] *C. Plinii 2[di]. Nat. Hiſt. Lib. 7. cap. 48.* [p] *Phleg. Trall. Lib. de Longæv. cap. 1.*

the laſt taxation, numbering, or review of the *Provinces* taken under the *Cæſars Veſpaſians* Father and Son, both Emperors and Cenſors, there were ſix men all of the town of *Velleiacium*, that brought in certificats that they had lived 100 years apiece; and that in the review taken of the eighth region of *Italy* only, there were found no leſs than 54 perſons 100 years of age[q]. In my travells through *Oxfordſhire* I met with one *Geo. Green* of *Woodſtock*, and *William Carter* of *Curbridg* in the pariſh of *Witney* juſt of that age[r], with many others near it; and in *Staffordſhire* ſo many that I thought them not worth noting. *Polycarpus* Biſhop of *Smyrna*, and *Appollonius Tyaneus* both exceeded a hundred[s]; and *Thuanus* has recorded it, that one *Robert Conſtantine* born at *Caen* in *Normandy* lived to 103[t]; of which very age one *Brian Stephens* dyed lately at *Woodſtock*[u]. *Gartius Aretinus* great grandfather to *Petrarch*[w], and *Hippocrates Cous* the famous *Phyſician* lived each of them to 104[x]. In which year of his age *John Beſt* of *Horton*, as was ſaid above § 3, found himſelf ſo ſtrong, that he marryed a wife and got her with child tho' a woman of 56. S[t]. *Anthony* the firſt founder or reſtorer of *Monks* lived to 105[y]; and ſo did an old man I heard of at *Ruſhton Spencer* in this *County*; at which years Cardinal *Bellarmin* alſo tells us he himſelf knew an old man ſo luſty and ſtrong, that he was likely to live many years longer[*]. M[r]. *Carew* acquaints us that in the *County* of *Cornwall*, one *Beuchamp* arrived to 106[z]; to which very year, *William Cox*, and *William Ketley* of *Womborn* in this *County*, both attain'd before they dyed; and the Reverend D[r]. *Hakewill* ſays he was credibly informed, that *William Pawlet* Marqueſs of *Wincheſter*, and Lord high Treaſurer of *England*, who was born in the laſt year of *Hen.* 6, and dyed in the 10th. of Q. *Eliza.* having lived in 9 *Kings* and *Queens* raignes, was near a hundred and ſeven[a].

99. To advance yet higher, *Gorgias* a Rhetorician lived to 108[b]; and ſo did *Thomas Wiggen* of *Carlton* in *Yorkſhire*, as D[r]. *Liſter* tells us, and ſome months over[c]; wanting but little of *Democritus* of *Abdera* who reached 109[d]. There lived one *Parke* in *Cornwall* as M[r]. *Carew* informs us, that was 110[e]; and in the

[q] C. *Plinii* 2[di]. *Nat. Hiſt. Lib.* 7 *cap.* 49. [r] *Nat. Hiſt. of Oxfordſh. Chap.* 2. §. 3. *and Chap.* 8. §. 54. [s] *Lord Bacon's Hiſt. of life and death p.* 18. 19. [t] *Jac. Aug. Thuani Hiſtoriarum Tom.* 5. *Lib.* 134. *ad An.* 1605. [u] *Nat. Hiſt. of Oxfordſh. Chap.* 2. §. 3. [w] *Dr. Hakewill's Apologie Lib.* 3. *Sect.* 7. [x] *Lord Bacon's Hiſt. of life and death. p.* 19. [y] *Ibid. p.* 18. [*] *Diſputationum Roberti Bellarmini Tom.* 1. *Lib.* 1. *de verbo dei. cap.* 7. *ſub finem.* [z] *Carew's Survey of Cornw. loco ſupra citato.* [a] *Loco ſupra citato.* [b] *Lord Bacon's Hiſt. of life and death. p.* 15. [c] *Philoſoph. Tranſact. Numb.* 160. [d] *Lord Bacon's Hiſt. of life and death. p.* 16. [e] *Carew's Survey of Cornw. Book* 2. *p.* 191.

review

reiv[redacted]th region of *Italy* above mentioned, they found n[redacted]57 that had arrived to the ſame[f], in which year of th[redacted]*eph* and *Joſhua* dyed. *T. Purennius Tutus*, as *Phlegon*[redacted]s, was 111[g]; and *Joſias Pierce* late of *Witney* in *Oxfordſhire*; and *J. Sagar* of *Burnſey* of *Lancaſhire*, lived to 112; yet both fell ſhort of *L. Antiſtichus Soterichus* who was 113, and of *L. Petrus Cornelienſis*, and *Richard Clifford* of *Bolſcot* in the *County* of *Oxon*, who reach't 114. *Johannes Temporarius* in his Chronological demonſtrations ſpeaks of a poore man he knew, that got his living by his labour, of 116[h], which was older than *Paul* the Hermit who advanced but to 115[i]; but not ſo old as *William Poſtell* a *Frenchman* who held out almoſt to 120[k]. At the taxation aforemention'd under the *Veſpaſians*, there were three found at *Parma*, that had compleated that age[l], and ſo did *Simeon* the ſon of *Cleophas* Biſhop of *Jeruſalem*[m]: *Arganthinus* King of *Cadiz*[n], *Romuald* of *Ravenna* a famous Hermit[o], and *Brawn* the beggar of *Cornwal*[p], who were all as old as *Moſes* and *Aron*, 120 apiece.

100. Which was an age thought ſo attainable *An.* 1553, that one *Thomas* of *Ravenna* writ a book printed at *Venice*, which he didicated to *Julius* the third then Pope of *Rome*: *de vita hominis ultra* 120 *annos protrahenda*, prefixing this title to his 5 Chapter. *Qui ævo noſtro præſenti ultra annos* 120 *ſupervixere.* Where he numbers up ſeveral that had then exceeded it. In the *review* abovemention'd of the eighth region of *Italy*, there were 2 perſons found of 125[q]; and one at *Breſſello* at the taxation of the *Veſpaſians*; and another at *Placentia* that was elder by a year, i. e. 126[r]. *Felix Platerus* late Profeſſor at *Baſil* alſo reports that his Grandfather was 126[s]; and D^r. *Liſter* ſays he ſpoke with one *Robert Montgomery* living at *Skipton* in *Yorkſhire*, but born in *Scotland*, of the ſame age[t]; who yet were both exceeded by *Ralph Lees* of *Totmonſlow* a ſheapard of this *County* who numbered 127 years; yet could give no account beſide the providence of God, of what might conduce to his *Longevity* (as he told my worthy Friend D^r. *Richard Morton* who ſaw and diſcourſed him) but that he never took *Tobacco*, nor *Phyſick* in his life, nor drank between meals, always alleviating his thirſt by

[f] *C. Plinii* 2^di. *Nat. Hiſt. Lib.* 7. *cap.* 49. [g] *Phleg. Trall. de Longæv. cap.* 3. [h] *Joh. Temporarii Chronolog. demonſt. Lib.* 1. *cap.* 4. *ſub finem.* [i] *Diſputationum Rob. Bellermini Tom.* 1. *Lib.* 1. *cap.* 7. *ſub finem.* [k] *Dr. Hakewill's Apologie Lib.* 3. *Sect.* 7. [l] *C. Plinii* 2^di. *Nat. Hiſt. Lib.* 7. *cap.* 49. [m] *Lord Bacon's Hiſt. of life and death p.* 18. [n] *C. Plinii* 2^di. *Nat. Hiſt. Lib.* 7. *cap.* 48. [o] *Fran. Petrarchæ Epiſt. Rerum Senilium, Lib.* 16. *Ep.* 2. [p] *Carews Survey of Cornw. Book.* 1. *p.* 63. [q] *C. Plinii* 2^di. *Nat. Hiſt. Lib.* 7. *cap.* 49. [r] *Ibidem.* [s] *Felcis Plateri Quæſtion. Medicarum paradox. & eudox. Quæſt.* 74. [t] *Philoſoph. Tranſact. Numb.* 160.

rolling pebbles in his mouth: which what satisfac[redacted]ons could give, let the *Reader* judg, he being an old man b[redacted]o-*bacco* came into common uſe; and never ſo ſick in his li[redacted]nt *Phyſick*; nor ſure could the laſt conduce much, ther[redacted]ny that thus never drank between meals, that ſcarce arrived to the moyety of this mans age.

101. Who yet was not ſo old as one *Polzew* of *Cornwall*, who as M^r. *Carew* tell us extended his age to 130[u]; and ſo did the old man of *Everſden* in *Bedfordſhire* mention'd by D^r. *Willet*, who dyed in *An.* 1600 yet could remember *Boſworth* field at the comeing in of King *Hen.* 7. being then as he ſaid about 15 years old[w]; of which very age, in the aforeſaid *review* of the eighth region of *Italy* they found no leſs than four, as they did alſo that had arrived to 135[x]. *L. Tertius* of *Bononia* as *Phlegon* reports was likewiſe of that age; and he ſays he ſaw one *Fauſtus* a ſervant to *Cæſar* who was 136[y]. In the ſame *review* juſt now mention'd, there were alſo found four of 137[z]; in which year of their age *Levi* the brother of *Joſeph*, and *Amram* the father of *Moſes* and *Aaron*, both dyed; falling ſhort of *James Sands* of *Harbourn* in this *County* who dyed *Dec.* 6. 1588[a], having attained to the age of 140, and outlived 5 *Leaſes* of 21 years each, made him after his marriage; and D^r. *Liſter* tells us of an old man ſummon'd as a Witneſs in a cauſe out of *Dent* in *Craven* to the Aſſize at *York An.* 1664, that wanted not half a year of the ſame age, yet could make *fiſh hooks* as ſmall as would take a trout with a ſingle hair*. Which yet is not ſo much as is told us by *Buchanan* of a certain *Scotchman*, *qui centeſimum quadrageſimum annum agens, ſæviſſimo mari in ſua navicula piſcatum prodibat*[b]. who at ſevenſcore years of age was able to goe out a fiſhing in tempeſtuous weather in his own little boat: tho' he wanted not much of *Jacob* himſelf who was but 147.

102. *L. Terentius* of *Bononia*, and *M. Apponius* of *Ariminum*, as appear'd by the taxation of the *Cæſars Veſpaſians* both reckon'd 150 years; to which age many of the inhabitants of the mountain *Imolus*, anciently call'd *Tempſis* (as *Mutianus* teſtifies) ordinarily lived; at which age alſo *Titus Fullonius*, of *Bononia*, likewiſe entr'd his name into the *ſubſidie book*, at the time that *Cl. Cæſar* held the general tax[c]; *Arganthonius* King of the *Tarteſſians* according to *Phlegon* was alſo 150[d]; and *Franciſcus Alvares* ſaith he ſaw *Albuna Marc* cheif Biſhop of *Ethiopia*,

[u] *Loco ſupra citato.* [w] *Dr. Andrew Willet's Hexapla in Gen. Chap.* 5. *v.* 5. [x] *C. Plinii* 2^di. *Nat Hiſt. Lib.* 7. *cap.* 49. [y] *Phleg. Trall. Lib. de Longæv. cap.* 4. [z] *Loco ſupra citato.* [a] *Ex Regiſtro Eccleſiæ de Harbourn.* * *Philoſop. Tranſact. Numb.* 180. [b] *Geo. Buchanni Rerum Scotic. Hiſt. Lib.* 1. *in ipſo fine.* [c] *C. Plinii* 2^di. *Nat. Hiſt. Lib.* 7. *cap.* 48, 49. [d] *Phleg. Trall. Lib. de Longæv. cap.* 4.

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who was of the same age [e]. Who yet all were exceeded by our famous *Thomas Parr* who was 151, being born at *Winnington* in *Shropshire*, *Anno* 1483 the last of *Edward* 4, and living to 1634 the 9th of *Charles* the first, 10 *Kings* and *Queens* reigns; and *Epimenides* the *Gnossian*, as *Theopompus* affirms lived to 157 [f]. Which is probable enough, since *Roger Bacon* tells us, *pluries experti sumus nostris temporibus, quod homines rurales sine consilio Medicorum vixerunt centum sexaginta annos* [g]: i. e. that they had frequent examples in his days of Country Swayns that without the help of *Physicians* reach't 160. But so have *Princes* too, for as *Pliny* tells us *Cynaras King* of the *Cyprians* was of the same Age *. Which I suppose may be enough sufficently to demonstrat, that for above 3000 years downward, the length of *mans age* is nothing abated; not to mention the fabulous improbable longevities, of *Johannes Buttadæus* the wandering Jew [h]; *Artesius* the Philosopher; or the *German* mention'd by *Roger Bacon*, who by the help of *Art* (as appear'd by the *Papal* credentials) had prolong'd his life to 500 years [i]: in comparison of whom, the *Paracousy* of *Florida*; *Xequepeer* of *Bengala*; and the other old Man mention'd by *Ferdinand Lopes* of *Castegned*; though all about 300, were but young men [k].

103. Beside the remarkable *Longevity* of *Men* and *Women* solitarily considered, we find it sometimes attending them joyntly and in consort, both *Man* and *Wife* being met with now and then of extraordinary *ages*. Thus as *Thuanus* informs us, one *Demetrius* and his wife in the *Low-Countries*, one being 103 and the other 99 years of age, having been married threescore and fifteen years, dyed within 3 hours space of one another, and were both buryed at the same time at *Delft* in *Holland* [l]: just like one *William May* and his wife *Joyce* of *Longdon* in this *County*, who dyed so near together that they were both buryed in a day, being brought to *Church* on the same *Bier* and lay'd in the same *grave*, he being 108, and she 98 years old: not forgetting that the wife of *James Sands* of *Harbourn* above mention'd (who was 140) lived also to 120 years of age; which is more than what is reported of *Aquila* and *Priscilla*, who lived together in such a happy wedlock, but till they were a 100 each [m].

104 Nor has extraordinary *Longevity* only attended *marry-*

[e] *Rich. Verstegan's restitution of decayed Antiq. cap.* 10. *p.* 253. [f] *C. Plinii* 2d. *Nat. Hist. Lib.* 7. *cap.* 48. [g] *Rog. Bacon de mirab. Potest. Art. & Nat. p.* 511. 512. *edit Basil.* 1593. * *Loco supra citato.* [h] *De Quo vid. Guidon. Bonati Astronomiæ part.* 1. *Tract.* 5. *Consid.* 141. [i] *Loco supra citato.* [k] *Dr. Hakewill's Appologie Lib.* 3. *Sect.* 7. [l] *Jac. Aug. Thuani Historiar. Tom.* 5. *Lib.* 134. *ad An.* 1605. [m] *Lord Bacon's Hist. of life and death. p.* 18.

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ed Couples: but ſometimes too (tho' perhaps a little more rarely) whole *Families* together, whereof ſeveral *Generations* have been living at a time: thus as *Thomas Ravenna* informs us, there was a *Seaman* in his time in the *Venetian* fleet, who tho' threeſcore years of age, yet had his *Father*, *Grand-father*, and *great Grand-father* ſtill living, the eldeſt whereof was not 120[n]. To which tho' it be hard to bring a parallel inſtance, yet I met with one of the kind that is ſomewhat remarkable, in the perſon of one M[r]. *Doody* of *Hanchurch* in this *County*, who was a *Grand-father* and a *Grand-child* at the ſame time, i. e. he became a *Grand-father* himſelf before his own *Grand-father* dyed, there being five generations living together. Which is much the ſame thing that happen'd in the family of the right illuſtrious Princeſs the Lady *Letice* Counteſs of *Leiceſter*, *Eue*, and *Eſſex*, Viſcounteſs of *Hereford*, Baroneſs of *Denbigh*, and *Ferrars* of *Chartley*; Siſter to *William* Lord *Knolles* of *Greys*, Viſcount *Wallingford* and Earl of *Banbury* K[t]. of the *Garter*, who had the happineſs to ſee living the *Grand-children* of her *Grand-children*; as is declared in her *Stemm* at the Manor of *Drayton*[o].

105. Now that there ſhould be five *generations* living at a time, as in the preſent examples; or ſix, as in the inſtance of *Mary Cooper* above mentioned, is not indeed ſo wonderfull; ſince if People marry young enough, it may well be ſo: as in the caſe of my Lady *Child* in the *County* of *Salop*, who as I was credibly informed being marryed at 12, had a Child in the 13th. year of her age; which Child being marryed as young, had another alſo at 13, ſo that this Lady was a *Grand-mother* at 27, and might poſſibly have been a *great Grand-mother* at 40, a *great-great-Grand-mother* at 53, and a *Beldam* at 66: but the marriages in our inſtances being not ſo early, the caſes are the more remarkable. However this caſe of my Lady *Child*, compared with that of the *Venetian* Soldier mention'd by *Ravenna* will ſerve to ſhew how many generations 'tis poſſible may be exiſtent at the ſame time: for if there may be ſix *generations* whereof the eldeſt need not be above 66, and that 4 *generations* have been living at a time, whereof the youngeſt has been 60, and the eldeſt not 120, (which how much longer they continued we have no account) it is plainly poſſible, that 9 *generations* may be exiſtent together, as will plainly alſo appear by dividing 120 by 13. Or in caſe a man ſhould live to 160,

[n] *Tho. Rav. de vitâ hominis ultra* 120. *annos protrahenda Cap.* 5. [o] *Ex Chartulariâ honoratiſſimi D[ni]*. Thomæ Vicecomitis *de* Weymouth *D[ni]*. *Manerii de Drayton.*

as *Roger Bacon* says 'twas common for Country men to doe in his time[p]: by the same rule 'tis evident, provided such a Mans off-spring all marry so young, that 'tis possible 12 generations of men may be all contemporaries.

106. Nor have many *generations* of the same *family* been only living at the same time dispersedly here and there, but some times several of them in the same house: thus at *Horton-hay* in this *County*, at one Goodman *Stantons*, there were 4 generations all living together, just like the matchless family of the *Fairfaxes* of *Barford* within two miles of *Warwick*, whereof there were also 4 *generations*, and 3 of them double, that for divers years dwelt in the same house together, and eat at the same table, the pariculars whereof are put into *Latin* verse by *Tho. Dugard* Rector of the place[q]. And not only *Familys*, but some *Villages* and *parishes* have also been remarkable for Longevity, there having been 4 buryed at *Horton* not many years since that made up *sixteenscore*, and 7 or 8 at *Ashley* all above fourscore. The Worshipfull *William Leveson Gower* Esq; (as was mention'd above[r]) having 4 Tenants all living at *Cocknage* when I was there, that one with another made up 360; nor is it long since that Mr. *Biddulph* of *Biddulph* had 12 Tenants all living at a time in the adjoyning parishes of *Biddulph* and *Horton*, whose ages put together made 1000 years. Which comes pretty near the *Morris-dance* of *Herefordshire* mentioned by my Lord *Bacon* performed by 8 men, *temp. Jac.* 1. whose ages computed together made 800 years[s]; or that other *temp. Car.* 1. performed in the same *County* by 5 Men and 5 Women, whose *ages* joyntly together amounted to 1000; what some of them wanted of 100, in both instances, being supplyed by others that exceeded it as much.

107. Beside *extreme old age*, we must not forget to reckon amongst the forerunners of death, those *signal warnings* that some *families* have, before the approaches of it, such as the *knocking* before the death of any of the *family* of Captain *Basil Wood* mention'd in *Oxfordshire*[t], which has not only been further confirmed since my writing that *History*, by the like *signal* given before the death of the said Captain *Wood* himself: but from its attendance in like manner upon the *family* of *Cumberford* of *Cumberford* in this *County*; three *knocks* being always heard at *Cumberford-Hall*, before the decease of any of that *fa-*

[p] *Loco supra citato.* [q] *See England described by Edw. Leigh in the Preface.* [r] *Chap. 2. §. 25.* [s] *Lord Bacons Hist. of life and death p. 20.* [t] *Nat. Hist. of Oxfordshire Chap. 8, §§. 33, 34, 35, 36.*

mily, tho' the party dyeing be at never ſo great a diſtance. Thus I was told alſo at *Ammington* by the Worſhipfull *Sebright Repington* Eſq; that a noiſe ſomewhat like a *Drumm* was heard about 8 or 9 a Clock at night, for 6 or 8 weeks together in a ſtack of *Chimneys* of his houſe at the death of his firſt *Lady*, which they ſay is always heard upon departure of any of the family of *Burdet*, whence that *Lady* came. And thus as I was informed concerning another *family* in this *County*, there is alſo a noiſe of *bees* heard in one of the *farmes* belonging to it, before the death of any of them, of which 'tis common for the *Tenants* to give them notice when perhaps there is none of the *family* ill, yet in a little time ſome of them certainly dye; as thoſe of the *family* of *Oxenham* in the *County* of *Devon* likewiſe infallibly doe, upon the appearance of a *bird* with a *white breſt* fluttering about their bedds [u].

108. In the very *article* of *death* I have met with nothing obſervable, nor indeed any thing in the *grave* it ſelf, but certain *bones* of an extraordinary make and ſize: at *Tamworth* in the *Charnel* houſe, I was ſhewn a great collection of *Skulls*, amongſt which there were many, that had a *Suture* that came downe from the *Coronalis* through the middle of the forehead to the top of the noſe: theſe as the *Clerk* told me were all *Womens* skulls, and that this was a certain *Characteriſtick* whereby one might know a *Womans* skull from a *Mans*: but by his favour I gueſs they might as well be *Mens* as theirs, provided they dyed young: for I find this *frontal ſuture* is but a continuation of the *Sagittalis*, which in all children till two or three years old, and in ſome till eight or ten (more rarely in adult perſons) is thus continued (cutting the *Coronalis*) down to the very ridg of the noſe; ſeldom any footſteps of it appearing after thoſe ages [w]: tho' *Diemerbroeck* acquaints us that he had a *skull* by him of a perſon that dyed at 50, wherein this *frontal ſuture* was very perfectly to be ſeen, but then the *Coronalis* and *Hypſiloides* were both grown up [x].

109. In the digging open a *Low* on *Ecton hill* near *Warſlow* in this County, there were found mens bones as I was told of an extraordinary Size, which were preſerved for ſome time by one M^r. *Hamilton* Vicar of *Alſtonfield*; and I was inform'd of the like dugg up at *Mare* in the foundation of the *Tower*; but theſe being buryed again, or otherwiſe diſpoſed of before I came there, I can ſay little to them. Yet that ſometimes men are produced of *unuſual ſtatures* as well in *exceſs* as *defect*, I received a

[u] *Epiſt. Hoeliana, Vol.* 1. *Sect.* 6. *Epiſt.* 9. [w] *Isbr. Diemerbroeck Anatom. Corpor. human. Lib.* 9. *cap.* 4. [x] *Ibidem.*

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certain proof from Mr. *William Feak* Alderman of *Stafford*, who gave me the *jaw* bone of a *Man* or *Woman*, with a *tooth* yet remaining in it, near double the magnitude of those men ordinarily have, which was found in the South *Chancel* of the *Collegiat* Church of St. *Marie* in *Stafford*, where now lyes the grave-stone of *Ann* the wife of *Humphry Perry*; which is enough to shew that Mankind is no more abated in stature than it is in age, the world still affording us a *Goliah* now and then, as well as of old; as was more fully proved above[y].

110. And thus I had finisht the eighth *Chapter*, but that I must begg leave first to acquaint the *Reader* that since the printing the 12 §. of it, I have found that one Sr. *Robert de Broc* who was Marshal of *England* and Forester of *Cannoc temp. Ric.* 1. might well have been numbered amongst the men of Valour of this *County*[z] especially if this were the man (as some think) who was so hardy in those days, as in disgrace of *Thomas Becket* Arch-Bishop of *Cant.* to cut of his horses taile as he past through *Stroud* near *Rochester* in *Kent* according to *Polydore Virgil*, or at *Canterbury* it self as the *Quadriloge* of his life: for which he amongst others was publickly excommunicated on *Christmas* day by the Arch-Bishop himself, and all the *Off-springs* of his *Abettors* curst with *tailes* to posterity*. Whence some think it hath come to pass that all the Inhabitants of *Kent*, and all *English-men* abroad, by way of Mockery are call *Sileni* or *long-tailes* to this day. And that it should have been remembred amongst the Lawyers, that *John Taylor* Dr. of Laws abovemention'd §. 54. born at *Barton* in this *County*, was Mr. of the Rolls *temp. Hen.* 8. that Sr. *Peter Warburton* father to Mr. *Warburton* of *Abbots-Bromley*, was one of the Justices of the *Kings* bench *temp. Eliz.* & *Jac.* And that *Richard Weston* Esq; grandfather to the present Mr. *Weston* of *Rugeley* was one of the Barons of the Exchequer *temp. Car.* 1.

[y] §§. 50, 51, 52. [z] *Sr. William Dugdal's Antiquities of Warwickſh. Illuſt. p.* 374.
* *Ranulfi de Diceto Imagines Hiſtoriarum in An.* 1171. *See alſo Mr. Lambards Perambulation of Kent, in Stroud.*

CHAP. IX.

Of Arts.

1. BEfore I enter upon conſidering any particular *Art*, it may not perhaps be unneceſſary to acquaint the *Reader*, that *Arts* are not treated of here as a παρεργον, *appendix*, or acceſſion to the *Work*, but as properly falling under a *Natural Hiſtory*; *Art* being nothing elſe but *Nature* reſtrained, forced, or faſhioned, in her *matter* or *motions*: things of *Art* (as my Lord *Bacon* well obſerves) not differing from thoſe of *Nature* in forme or eſſence, but in the efficient only[a]. In the handeling whereof I ſhall ſtill purſue my forementiond *Method*, and treat firſt of ſuch *Arts* as relate to the *Heavens* and *Air*; then of *fire* and *water-works*, and thirdly ſuch as tend to the improvement or better management of *Earths*, *Stones*, or *Plants*; and laſtly of ſuch as any way reſpect *Men* or *Women*; under which I comprehend the new invention or advancement of any *Mechanick* or other *Art*; which I doubt not may ſuffice for the following *Chapter*.

2. And firſt in relation to the *Heavens* and *Air*, I have met with nothing new here, either concerning a further diſcovery of the *Magnitudes*, or determination of the *Motions* of any of the *heavenly bodies*; unleſs a new ſort of *Dyal* (ſuch an one at leſt as was ſo to me) that I met with at the houſe of the Worſhipfull *Alexander Harcourt* Eſq; of *Ranton* in this *County*; made of three boards repreſenting a *book* open'd, ſix inches deep; with ſome of the *middle leaves* ſtanding up between the *Covers* and ſome other *leaves* at ſix inches diſtance on each hand, all facing the South, and ſo *elevated* as to ſtand parallel with the *Axis* of the *World*. Upon the *Eaſt* ſide of which *middle leaves*, the hour lines of 4 5 6 and 7 were drawn at their due diſtance to one another, the *leaves* and *cover* of the *Eaſt* ſide of the book being the *Gnomon*, to them; and on the *Weſt leaves* and *covers*, the hour lines of 8, 9, 10, 11. the *middle leaves* of the *book*, elevated as above being their *Gnomon*; till the *Sun* comeing to the *Meridian* and ſtriking them at right angles, caſts no ſhade at all, which gives the hour of 12 as in other dyalls. Thence the *Sun* now having cut the *Meridian* (theſe *middle leaves* becoming

[a] *De Augm. Scient. Lib.* 2. *cap.* 2.

the

the *Gnomon* again) throws the ſhade upon the *Eaſtern leaves* of the *book*; and there deſcribes the hours 1, 2, 3, 4. and thence on the *Weſt* ſide of the *middle leaves* 5, 6, 7, 8. the *Weſtern coates* being the *Gnomon* to them. Which ſort of *dyall* being eaſy and pretty, and I think new (at leaſt not commonly known) I thought worthy the mentioning.

3. As I ſhould alſo have done a moſt compendious, *inſtrument* firſt invented and made by the Worſhipfull *Francis Wolverſtan* of *Statfold* Eſq; which he moſt properly calls a *dyall Quadrant*; whereby he not only obtains with ſpeed, eaſe and exactneſs, the *declination* of all *planes*, with their *verticals* whether *inclining*, *reclining*, or *declining*, without giving himſelf the uſual trouble of obſerving the obliquity or irregularity of them: but with great facility and accuracy alſo marks out the *Center* and *ſubſtile* of the deſigned *dyall*, with the ſeveral hourlines, and parts of hours, that the *plane* will admit. In ſhort by this inſtrument he performs all ſorts of *dyalling* with much leſs trouble than was anciently uſed. Which I ſhould (I ſay) more particularly have deſcribed, but that it hath been printed already though ſurreptitiouſly in *An.* 1668 by one A. M. under his own name, without either the acquaintance or conſent of the firſt *Contriver*; and that the like has ſince alſo been publiſh't by divers other *Authors*. Which is all concerning the *Heavens* and *Air*: but that my worthy frind M. *Walter Jennings* Rector of *Church-Eyton* ſhewed me a very eaſy and cogent *Experiment*, proving the force of the rarefaction of the *latter*, by the *Sand* of an *Hour-glaſs*, which running very freely, was ſtopt by holding a *coal* to the lower part of the glaſs; which as ſoon as withdrawn, the *Sand* ran again freely, and ſo *toties quoties*.

4. It being very improbable, that there is any other *fire* but ſuch as that we call *Culinary* (that in the *Concave* of the *Moon* being a meer fancy of the *Ancients*) the *Arts* relating to the *fire*, muſt follow thoſe of the *Air*. Amongſt which it is not of the leaſt conſequence, that they improve their land here much by the help of *fire*, burning their *turf* firſt to aſhes, either in their houſes, or after the manner as deſcribed *Chap.* 3. §. 14, which they call *Eſs*, and then laying them on their *Meddow*, *Rye*, or *Barley* grounds, which as ſome are of opinion bring more profit to the *husbandman*, than any other *dung* or *ſoil* whatever: the ſteril juices according to *Virgil* being deſtroyed in theſe,

——*Omne per ignem*
Excoquitur vitium, atque exſudat inutilis humor[b]:

and the fertil ſalts only remaining, which diſpoſe the land princi-

[b] *Georgic. Lib.* 1. *v.* 87, 88.

pally to the production of *Seed*, whereas the *dung* of beaſts and moſt other *Soils*, tend more to the ſending up a rank ſtraw or *haum*, and breeding of *weeds*. Upon which account ſays the ſame *Virgil*.

Sæpe etiam ſteriles incendere profuit agros,
Atque levem ſtipulam crepitantibus urere flammis[c].

and *Palladius* in his Chapter *de Stercuilinio*, numbering up the ſeveral *compoſts*, concludes at laſt, *porcinum peſſimum, Cineres optimi*[d].

5. Upon theſe *aſhes*, eſpecially in windy weather, to prevent their blowing away, 'tis a common thing to caſt *parings* of the *earth* near by, upon the moſt flaming parts, then *turf* or *ſtubble* again, then *earth*, and ſo *ſtratum ſuper ſtratum*, and this they call *burn-beating*, and in ſome places *Denſhiring* their land. Which I gueſs was alſo in uſe anciently, *Virgil* alſo aſſerting that they did in his time,

Effætos cinerem immundum *jactare per agros*[e].

And in a cloſe about *high-On*, I ſaw them add to their *aſhes* and *earth*, all the *buſhes*, *furſe*, *broom*, *fern* and other *rubbiſh*, they could find about the ground, which burnt together, ſo calcined the *earth* above and below, carrying away the cold *ſteril juices*, and ſubſtituting in its room ſuch *fertil Salts*, that it yeilded thereupon an increaſe far exceeding the charge and labour beſtowed on it, and ſo I was told it would continue to doe, if layd upon *dry* land for 7 years together: but if upon *moiſt waſhy* land not above two. They alſo mix their aſhes ſometimes with *Lime*, which alſo belongs to this place being prepared by *fire*, which is ſo good a compoſt for their poor *heathy* land, that they often think it worth while to carry it twenty miles for this purpoſe: but of this no more, becauſe of the manner of preparing it, its qualities, &c. at large elſewhere[f].

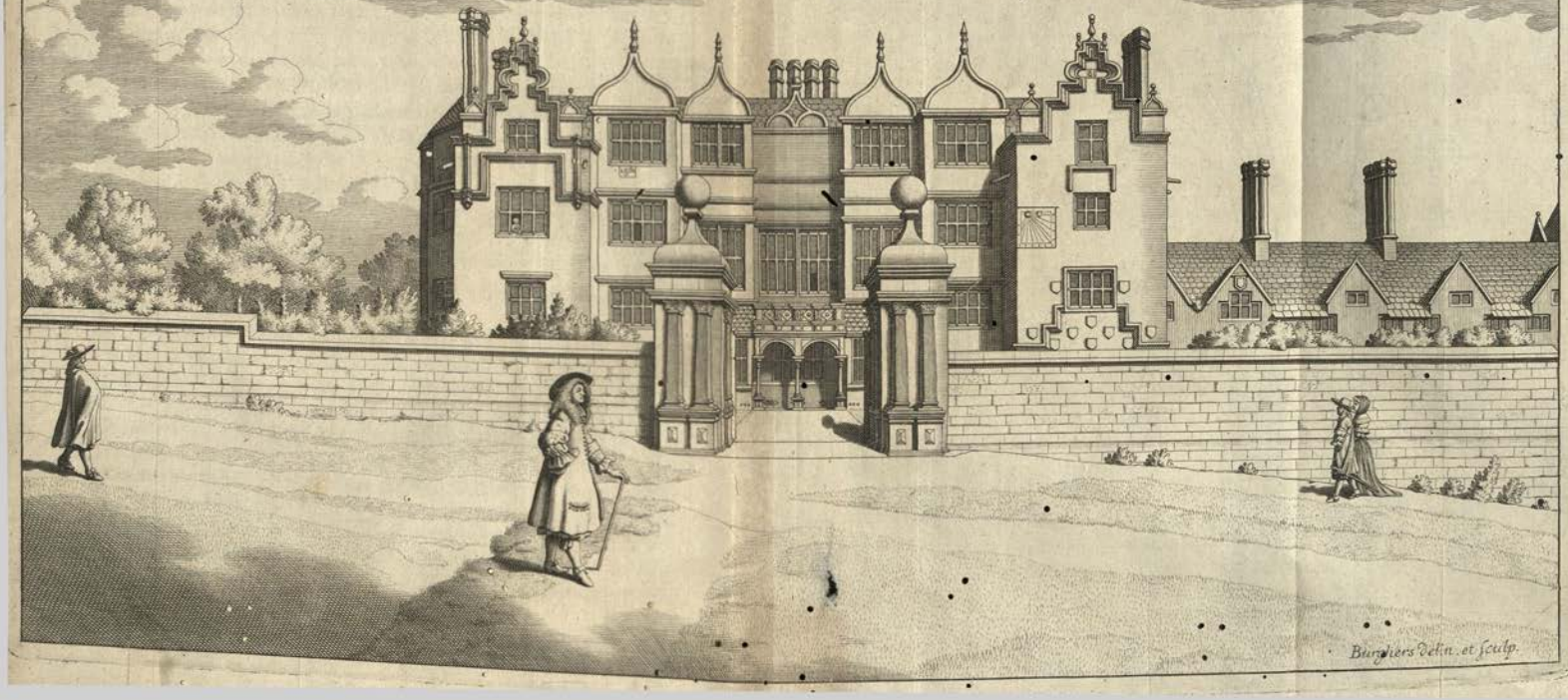
6. Nor doe they only burn their *turf*, *earth*, *buſhes*, and *fern*, to improve their land, but the latter of theſe in *June* when *green*, for another uſe: which that they may perform the better, they moſt commonly doe it on the ſide of a hill (as I ſaw them near *Marbrook*) lyeing to a freſh gale of wind. I was told they burnt it *green*, that the aſhes might not fly away during the operation, which they certainly would doe, if the *fern* were ſuffer'd firſt to wither before it is burnt: but I gueſs the true reaſon may rather be, that whilſt it is *green*, it hath an *oilyneſs* in it which doth not quite conſume, but remaining mixt with its *aſhes*, makes them the fitter for the uſe they are ordinarily put to; theſe

[c] *Ibid. v.* 84, 85. [d] *Pallad. Rutilii de re Ruſtica Lib.* 1. *Tit.* 33. [e] *Georgic. Lib.* 1. *v.* 81. [f] *Chap.* 4. §§. 5, 6, 7, 8.

made

ad pag 335

To the
Worpp the
prudent, and moſt
obligeing Gent:
WILLIAM SNEYD of KEEL Esq:
This 28. Table, being the South-West
Prospect of KEEL-HALL his principal
Mansion; in memory of his favours
is gratefully dedicated
by R.P. LLD


Burgiers Delin. et sculp.

made up into *balls* of about 3 inches *diameter* by the poorer ſort of people with warm water, being ſold at 5 or 6 a penny to waſh their *buckings* with, all the year about; wood aſhes not being eaſy to be had, in a *Country* where their fewel is ſo generally coal, as it is in this.

7. The *Art* of making *Fryingpans* may alſo be referr'd hither, the Secret in great meaſure conſiſting in the regulating the *heat*, that is given the *plates* whereof they are made, before they are brought to the *Anvil*. Which together with other matters relating to the *trade* being found ſo difficult, that a *Novice* many times is little the better though he ſerve a double *Apprenticeſhip* to it; and ſo ingenious and indeed wonderfull, that I thought it incredible, what I heard related of it, I ſhall not ſcruple to give the *Reader* the full proceſs thereof. Firſt then in order to them, there are flat round plates hammer'd out of barrs at a forge for that purpoſe at the pariſh of *Keel* in this *County*, not far from the fair Manſion of the Worſhipfull and judicious *William Sneyd* Eſq; a worthy Benefactor to this work, which is here repreſented *Tab.* 28. the *forge* little differing from thoſe of other *Iron-works* carrying a *hammer* of about 500 weight. In hammering of this *flatwork* they beat the *plates* firſt one by one, then two, three, or four together as they grow broader and thinner, which ſtick not together, having not a *heat* given them ſufficient for that: yet ſuch an one they have, as will continue longer (the *plates* being forged many of them together) than if each *plate* had been forged ſingle with a much higher heat, by which means the work is done not only with greater expedition, but profit too; the *plates* in this manner not only mutually preſerving their *heat*, but keeping each other alſo from *ſcaleing*, or being beaten too much away into Cinders or waſt.

8. When the *flat-work* is thus finiſh't at the *Forge* at *Keel*, they are then brought to another *forge* at *New-Caſtle* under *Lyme*, where *John Holland*, who is Maſter of both *forges*, works them into *ſhape*, nine *fryingpan-plates* being commonly laid upon one another, and claſpt together by turning up 4 *Labells* which are ordinarily fixt to the lower plate, and ſo turned one within another like a *neſt* of *Crucibles* or *Boxes*, the lowermoſt being always the biggeſt, and the uppermoſt the leaſt; the whole nine being turned nine times ſooner than one ſingle *Pan*: for the nine together mutually preſerve their heat ſo long, that they are all turned during one *heat*; whereas one ſingle pan will coole ſo faſt, that it will require at leaſt nine *heats*, before it can be forged, nor will it then be a good *fryingpan* neither: for it will ſo *Scale* away in the heating and forgeing, that it will at laſt

be

be but a thin infirm *Pan*. Now that which renders this *Art* of making *fryingpans* ſo difficult, is not only the bringing them to a juſt *heat*, which ſhall hold a ſufficient time and yet not make them lyable to ſtick in the hammering; but the number of *hammers* uſed in this work, which are not leſs than twenty of ſeveral ſorts: which ſo few know how to manage, or are capable of learning; that there are but two Maſter *Frying-pan makers* (as I am credibly inform'd) in the whole *Kingdom*: one, here at *New-Caſtle*, and another at *Wanſworth* in *Surrey*. They make alſo *Dripping-Pans* at theſe *Forges*, the *plates* being work't at the former, and the *pans* turned at the latter: but theſe being forged ſingly, and not in *neſts* like the *frying-pans*, there is not the ſame difficulty, and conſequently not the ſame ingenuity required, in the fabricating of them.

9. Alſo at *New-Caſtle* under *Lyme*, the *Tiles* burnt in a *Kill* the uſual way being found not to laſt: one M^r. *Thomas Wood* of the ſame *Towne* firſt contrived to burn them (which we may look upon as an *Art* relating to *fire*) in a *Potters* Oven: wherein he made them ſo good and laſting, that notwithſtanding they have been put to the hardſhip of dividing the parts of *Garden-knots*, to endure not only the perpetual moiſture of the earth, but froſt, ſnow, and all ſorts of weather: yet they few of them decay, ſcarce 5 *Tiles* in 500 having failed in 20 years time; ſo that now he has been followed by all the *Country* thereabout. It may alſo be look't upon as an *Art* not altogether forraigne to *fire*, that Prince *Rupert* ſhewed at *Stafford* in the time of the Civil-warr *temp. Car.* 1. where ſtanding in Captain *Richard Sneyd*'s garden at the high-houſe there, at about 60 yards diſtance, he made a ſhot at the *weather-cock* upon the Steeple of the Collegiat Church of S^t. *Mary* with a ſcrew'd Horſmans piſtol, and ſingle bullet, which pierced its *taile*, the *hole* plainly appearing to all that were below: which the King then preſent judging as a Caſualty only, the Prince preſently proved the contrary by a ſecond ſhoot to the ſame effect: the two *holes* through the *weather-cocks* taile (as an ample teſtimony of the thing) remaining there to this day.

10. To the *fire-works* ſucceed the *Arts* relating to *waters*; whereof ſome are for *profit* only, others for *pleaſure*: amongſt the former of theſe, the way of making a firme ſubſtantial *Mill-damm* is not of the leaſt conſideration: which they doe here eſpecially if they meet with a quick running ſand by laying the foundation with *unſlaked Lime*, which upon ſlaking amongſt ſuch ſand turns as hard as ſtone, and ſo gives a ſure foundation. But ſuch as will not be at this charge, lay it firſt with *water*

clay,

clay, and then a *ſtratum* of *Moſs*, then clay again, and then *Moſs*, and ſo S. S. S. yet ramming them together ſo cloſe that they become as it were a mixture. The ſuperſtructure next the water they face with *turf*, which again they face with a thatch of *heath* or *ling*, that enduring the water the beſt of any thing; then they lay *gravel* next, except near the *Floodgate*, where it muſt be *clay*. In the middle they lay a *Key* of *clay*, and *gravel* again toward the back of the *damm*, and then face it there too with *turf*, but not with *ling*, becauſe the water beats not on it there, though ſometimes they mend a breach alſo behind with it. Which is all relating to *Mills*; but that at *Hamſted Hall* there is a *Corn-mill* that pumps water up into a lofty houſe near it, whence all the *Offices* of the *Hall* are ſerved, the *Pump* working as the *Mill-wheele* goes to grind the Corn; much after the ſame manner as at the *Water-houſe* near the bridg at *London*. And that at Mr. *Parker*'s of *Park-hall* in the pariſh of *Caverſwall*, I was ſhewed an *Oat-Mill*, that husk't the *Oats* and winnow'd them, and then ground them to *meal*: the laſt *Mill* that ground them, being not turned immediatly by the water, but by two *wheels*, whereof one was faſtened to the *runner* of the firſt *Mill*, and the ſecond to the *runner* of the *grinding-Mill*, a great rope interceding.

11. This, I ſay had been all relating to *Mills*, except we may add, (as I think we may) that at the Honorable *Harry Gray*'s at *Enfield Hall*, the *Spits* in the *Kitchin* are turned with a *Mill*, the water being let through a *Cock* of above an inch bore into a little *wheel* of wood, made with *Ladles* to receive it exactly after the manner of an overſhot *Mill*, which being placed without at the back of the *Kitchin* Chimney, turns a ſpindle of Iron that paſſes through the brick-wall, at the end whereof is a round wooden *box* which receives a *Jack-line*, that goes alſo through another *box* which turnes a ſecond ſpindle above in the Chimney, that alſo carryes a *box* at the other end next the *Mantle-tree*, in which goe the *lines* that turne the *ſpitts*: all which the *Reader* may readily apprehend by *Tab.* 32. *Fig.* 1. where

a. repreſents the *Cock* whence the water runs.

b. b. the *Mill-wheel* that receives it.

c. c. the *Spindle* that paſſes through the *Chimney*, and turnes the firſt *box* at the end of it.

d. the lines that paſs between the *boxes* of the firſt and ſecond *Spindle*.

e. e. the lines that paſs between the *boxes* of the ſecond *Spindle*, and thoſe of the *Spitts*.

12. But before we leave the *Arts* belonging to the *waters*,

we muſt alſo remember they have an *Art* in this *County* of makeing good *Ale*: which being a liquid, and nothing elſe but boyl'd *water* impregnated with *mault*, muſt be referr'd hither. In the management whereof they have a knack of fineing it in three days time to that degree, that it ſhall not only be potable, but as clear and palatable as one would deſire any drink of this kind to be: which though they are unwilling to owne it, I gueſs they doe by putting *Alum* or *Vinegar* in to it whil'ſt it is working, which, as D^r. *Willis* aſſerts, will both ſtop the *fermentation* and precipitate the *Lee*, ſo as to render it as potable, as when it has ſtood a competent time to ripen[s]. The former whereof, as I am alſo informed by my ingenious friend M^r. *William Elward* Rector of *Bignor* [anciently *Bykenore*] in *Kent*, is made uſe of at *Frinſted* in that *County*, to fine their *water*, where they have little but that of ponds, which is ordinarily muddy: and that it is a moſt effectual remedy for curing *Cider* of a flying *Lee* which ſometimes attends it, and cannot be removed by ordinary means; as he has found by experience, having cured ſuch *Cider* ſo ſucceſsfully thereby, that it has been drank with good credit amongſt competent judges.

13. As for the *Water-works* of pleaſure, there are none very extraordinary in this *County*. In the Court of my Lord *Ferrers*'s houſe at *Chartley* there is a fair ancient *fountain*, whereof the the *Reader* may have a view if he pleaſe to look back to *Tab.* 5. And in the curious garden South of *Trentham Hall* there is another that ſends up a large *Column* of *water* falling into a *baſon* of 10 yards *diameter*, which from the *parlour* (the folding doores opening juſt againſt it) yeilds a pleaſant proſpect: but much better would it be, were it made to toſs a *golden ball* (as eaſily it might) and the deſigned *Viſta* were cut through the adjoyning wood; which lying upon a riſeing ground, and taking up a mile in length muſt neceſſarily give it a great advantage. But the beſt *Water-works* here, and the greateſt variety of them, are at S^r. *Richard Aſhleys* at *Pateſhull* in this *County*, where within a large *Rotundo* fenced about with a high wall of brick, opening with fair Gates of *Iron-work* againſt the *Front* of the houſe, there is a curious large fountain that throws up a *column* of *water* near an inch *diameter* much higher than the former, which falls into a *baſon* underneath, alſo proportionably larger, yeilding a moſt gratefull proſpect not only toward the houſe, but to the *walks* above it. And in a garden on the left hand of the paſſage to the houſe is a

[s] *Tho. Williſii Diatrib. de Febribus cap.* 3.

Cock

Cock to which belongs another *Inſtrument*, to be put on or taken off at pleaſure, that turns after the manner that the *pipe* does in our common *water Engines*, which will caſt water any way according to the diſcretion of him that governs it. In the garden *North* of the *houſe* the water paſſes through a *barrell* into the *Ciſtern* in the *Bird-cage*, into which were there put as occaſion ſhould ſerve, now and then a piece of *Turnſole*; it would prettily repreſent a veſſel of *Claret* always runing. And *Eaſtward* of the houſe is a long fair *Canale*, walled about with ſquared ſtone, at the *South* end whereof is a delicat *Grotto* deſign'd, which when finiſh't will add much to the perfection of this *Seat*, of which more hereafter.

14. Next the *waterworks*, follow the *Arts* belonging to *Earths*, which cheifly reſpect the *tillage*, or *formation* of them; matters according to ſome ſcarce worth conſideration: but I muſt crave leave to informe them, that *Agriculture* was ever of high eſteem, having exerciſed the pens of many learned Men, and challenges our attention not only in point of *profit*, but *difficulty* too: the products of the *earth* being the moſt univerſally beneficial, and its true *culture* requiring as nice and critical a judgment, as any *Art* whatever: which made *Columella* declare, *illud procul vero quod plerique crediderint, facillimam eſſe ac nullis acuminis Ruſticationem*, that it was a great miſtake that there was no difficulty or cunning in *Agriculture*[h]: the true manner of preparing the ſeveral *ſorts* of *land*; fitting them with their proper *manures* and *Seeds*; and curing them of their *diſeaſes*; *quid recuſet collis, quid compeſtris poſitio, quid Sylveſter ager; quid humidus & graminoſus, quid ſiccus & ſpurcus*; asking ſo long an uninterrupted a ſtudy, that the ſame *Columella* tells us he feared, *ne ſupremus ante Se dies occupet, quam univerſam diſciplinam ruris poſſit cognoſcere*[i]. That his whole life would not ſuffice to acquire it.

15. 'Tis true indeed that in his time, as well as now, this *rural* learning *turpi conſenſu* (as he is pleaſed to phraſe it) was in a manner neglected: the good man complaining, and not without reaſon, that in all other Enterpriſes, every body did *conſultiſſimum Rectorem adhibere*, take advice of the moſt skillfull in the matter in hand. *Sola res ruſtica, quæ ſine dubitatione proxima, & quaſi conſanguinea ſapientiæ eſt; tam diſcentibus egeat, quam magiſtris.* And a little after, *Agricolationis neque Doctores qui ſe profiterentur, neque diſcipulos cognovi*[k]. i. e. that he neither knew any *Profeſſors* of *Agriculture*, nor *Scholars* that learn't it.

[h] *Jun. Moder. Columellæ de re Ruſticâ in præfat ad. Silvinum. in fine.* [i] *In eadem præfatione non longe a fine.* [k] *Idem in eâdem præfat. ſub. initium.*

Which yet was the fault of thoſe times, as well as of theſe: for no queſtion, we might as well and perhaps more reaſonably give a *Guinea* or more according to the length of the journey, to a *Land-Doctor* to inſtruct us how to manage or cure the *diſeaſes* of a piece of *ground*; as to a *Phyſitian* to direct the health of our bodies; or to a *Lawyer* for his advice in our *plaints* or *defences*. I ſay more reaſonably, for that ſuch *Doctors* as theſe (as the ſame *Author* argues) ſeem the more uſefull and neceſſary to a *Common Walth*: *Nam ſine* Medicis, *atque etiam ſine Cauſidicis olim ſatis felices fuere, futuræque ſunt urbes*: *At ſine Agricultoribus nec conſiſtere mortales, nec ali poſſe manifeſtum eſt.* For that *Citys* have flouriſh't well enough either without *Phyſitians* or *Lawyers*; but that they cannot ſubſiſt without good *Husbandmen* is plain and evident[1].

16. It being clear then that the beſt methods of *Cultivating*, appropriating *Seeds* and *manures*, and cureing the *diſeaſes* of *land*, are of conſideration; it remains that we give a particular account how each of theſe are managed here, whether the lands are *Clay*, *Marly*, *Sandy*, *Gravelly*, *light mould*; or *Heathy*, *Broomy*, *Gorſy*, *Gouty*, *Boggy*, or *Cold black-land*. And firſt of *Clay* ground: which if it lye in *common field* as generally it does in this *County*, they have it always in *tillage*, ſowing it two years, and letting it lye fallow the third: they lay it in *ridges*, or otherwiſe according to the temper of the land, and make their *fallows* about the latter end of *March* or begining of *April*. After this a little before the ſecond tilth or plowing, which is commonly about the middle of *June*, they give it its manure, which is generally *Cow* or *Horſe-dung*, unleſs when folded with *Sheep*, and then immediatly ſpread it, and caſt it under furrow with the plow, leſt the *rain* and *Sun* ſhould weaken it. About the latter end of *Auguſt* they plow it again to kill the *weeds*, and turn up the *manure*, that ſo they may return it again to their *ſeed* at the laſt plowing when they *ſow*, which is uſually the week before or after *Michaelmaſs*.

17. The land being thus prepared, they ſow it with *wheat*, which is its moſt proper *grain*, and if a ſtrong *ſtiff clay*, or cold land, with *red Lammas*, or *bearded wheat*; otherwiſe, with *white Lammas*; and ſometimes with both mixt, it yeilding (as ſome think) the beſt that way; allowing of either two *ſtrike* to an *Acre*, whereof if they have twenty *ſtrike per Acre* again, they think it a good increaſe. The next *grain* they ſow in their *common feilds* after a crop of *wheat*, if the land be in good heart, are u-

[1] *Ibidem.*

fually

ſually *Beans*, the *French* white and red, or *horſe-beans*; according to that of *Cato*, *Fabam in locis validis non calamitoſis ſerito.* i. e. that *beans* ought to be ſown in the ſtrongeſt healthieſt land[m]. But if otherwiſe *Peas*, either white or gray, or *peas* and *beans* mixt; for theſe they plow at *Candle-maſs*, and ſow in the *decreaſe* of the *Moon*, having found (as they ſay) by long experience that they *Codd* much better, and are not ſo apt to run into ſtraw: for ſeed they allow four ſtrike of *peas*, and five of *beans* to a *ſtatute Acre*, whereof if they have again 20 ſtrike of the former, and 30 of the latter *per Acre*, they reckon they have had a competent Crop. And this is the manner of tillage that is alſo given *light* or *haſel mould* as well as *Clay*, wherever it is found and lay'd in *common field*: both alſo lyeing *fallow* the third year, for *wheat* again.

18. But if either *Clay*, or *light-mould*, lye out of the *common-field*, ſo that they may be till'd at the pleaſure of any ſingle *Proprietor*, they are alſo both capable of improvement by *marle*, eſpecially by the *dice* or *flat-marle*; which with *rain* runs like *lime*, and never bindes the *ſtiffeſt Clay*; but rather looſens it ſo, that after it has afforded eight or nine *cropps*, it will yeild very good *graſs*: whereas *clay-marle* layd on the ſame, ſo bindes the ſurface of them; that though they will not fail indeed of giving ſeven or eight *crops* of *Corn*, yet they are renderd hereby ill diſpoſed at leſt for *graſs*: unleſs the ground after all be well *muck't*, or manured with *muck* and *lime* mix't together, which ſome lay upon a *fallow*, others when they plow for *corn*; either of which ways it will yeild 2 or 3 *crops* more, and ſo mollifie the binding quality of this *marle*, that the land will yeild as good *graſs* as if otherwiſe improved. If it be a *mixt* ſort of land, either of *Clay* and *Gravel*, or *Clay* and *Sand*, which is not often very rich, they give it alſo much the ſame *tillage* they doe their *Clay* and *light-mould*, by *marleing* it, &c. only they ſow it with *Muncorn* or *Miſcellane* in the place of *wheat*: and this is that ſort of land they call in the *Moorelands* their *Main-land*, which is indeed the beſt they have, there being little *wheat* ſown there, becauſe no *clay-land*, ſuch as at *Heywood*, *Hixon*, *Marchington*, *Rolleſton*, *Wheaten-Aſton*, &c.

19. And as for pure *Sandy gravelly* ground, ſuch as about *Swinerton*, *Hatton*, *and Beech*; which will naturally bear nothing but *Rye*, *French-wheat*, or *Oats*, nor theſe neither unleſs well *muck't*, and then not above three years together, but it muſt *reſt* again; by the help of theſe *marles* (uſed as above)

[m] *M. Catonis Lib. de re Ruſtica tit.* 35.

lime, and good *muck*, they are made as good for all ſorts of *corne*, bearing as many *crops*, as any land whatever: which *marles* they lay on either upon the green *turfe*, or upon *fallows*, which at ſome places at leſt they make in *December* and *January*, but they account it the beſt of the two, to lay it on the *turfe*; quite contrary to *Pliny*, who ſays that all ground muſt be plowed firſt, before any ſort of *marle* be laid on it, that it may be the ſooner impregnated [n]: which they ſay here is of ſo ill conſequence (it being the nature of *marle* to work downward) that if you have not a skillfull *plow-man*, you may looſe all your *marle* in two crops whereas if you lay it on the *green ſword*, it incorporates with your land but gradually, and is ſo much better preſerved. Nor is it any *objection*, that by this way of manage they looſe their *graſs* that year; for if they ſpread their *marle* as ſoon as lay'd on, the *graſs* immediatly ſprings through it: but admitting they looſe a little *graſs* the firſt year, yet upon account they will have double the quantity the next, and much the better, this way is ſtill the more preferable.

20. But whether ſoever way of theſe they chuſe to *marle* their land, they make their *fallow* (as I ſayd) in order to ſowing in *December* or *January*: and in the latter end of *June* or beginning of *July* they ſtirr their *fallows*, and then (if new-broken ground) they *cagel* it with *harrows* to break the *turf*, and then plow it again to lay it in order againſt *September*, when they ſow it with *wheat*, which they doe in the begining of the *Month*, if their land be cold, with *red-Lammas*, or *Pollard-wheat*, that enduring cold beſt: but if it be warm ſound land, they let it alone to the latter end of the *Month*, and then ſowe it with *white-Lammas* or *Poland-wheat*, ſowing them both under furrow, and allowing of each two *ſtrike* to an *Acre*, as in the *common-fields*. After their *wheat* is off the land, they plow in the *ſtubble* in *December*, and if the weather proves froſty to mellow it, they ſeldom plow again till *April*, when they ſow it next with *barley*, and amongſt the ſeveral ſorts of that *grain*, if the land be any thing rank, with *ſprat barley*; but if otherwiſe, with the *long-ear'd* or *common barley*; whereof the former is eſteemed the bolder grain, and makes better *mault*: but the latter yeildeth a better *increaſe*: though ſome think they yeild beſt when ſown mixt. For *Seed*, they allow three *ſtrike* to an *Acre*, which generally yeilds them about thirty again.

21. The next *grain* they ſowe on their *marled* lands after *Barley*, are uſually *peas*, for which they plow bnt once, *viz.*

[n] *C. Plinii 2di. Nat. Hiſt. Lib. 17 cap. 8.*

in the begining of *February*, and ſowe then too: allowing for *ſeed* three *ſtrike* to the *Acre*. And next after *peas* (if they intend for ſix *cropps*) they ſowe *wheat* again, upon the *bruſh* (as they call it) i. e. upon the peas *ſtubble*; ſowing their *wheat* firſt, and then plowing it *in* under furrow, which many times proves as good a *crop*, as the firſt. The fift year they ſowe *barley* husbanded as before; and then for the laſt *Croop*, *red Oats*: and ſo lay it down again. Not but that they could, and doe many times, take two or three *cropps* more, intermixing cropps of *beans*, and ſometimes *Vetches* according as diſcretion directs them; but that they think it better to leave their *land* in ſome tolerable *heart*, which will then bear ſuch *graſs* after it is laid down, as will feed *beef* and *mutton* to a good mercatable *fatneſs*.

22. For the *heathy-land* of this *County*, it is ſeldom incloſed; but when they intend it for *tillage*, which is never for above five years neither, and then it is throwne open to the *Commons* again. But when they doe incloſe any part of it for this purpoſe, they generally proceed in the manner following. Firſt they ſtock up the *heath* with *mattocks*, &c. and then *fallow* it in *Winter*, and in the *Summer* enſuing give it its proper *manure*, which is *Lime* prepared as before deſcribed *Chap.* 4. allowing four loads to each *Statute Acre*, each load containing four quarters of *Lime*: which when ſlaked or quenched, is ſpread on the ground with ſhovels, and plowed *in* under *furrow* about the middle of *September*; and in the latter end of it, or begining of *October*, the land being thus prepared, ſowed with *Rye*, allowing for *ſeed* two *ſtrike* to the *Acre*, which if it yeild them twenty five *ſtrike* again, as commonly it does, they reckon they receive a competent increaſe.

23. After *Rye*, they ſowe *Barley* upon this *heathy* ſort of Land; in order to which they make their *fallows* about *Candlemaſs*, and give it another plowing in *April* and then ſowe it, affording for ſeed *three* ſtrike to an *Acre*, which generally yeilds them *thirty* again. And next *Barley*, *white peas*; for which they plow but once, and that is in *March*; and then *ſowe* them, allowing *three* ſtrike to an *Acre*. Fourthly after *peas*, they ſowe *Oates* on this land, either *red*, or *white*, if it be in good *heart*; but if poor and week, *black-oats*; for either of which one *plowing* is ſufficient (which generally is in *March*) and ſo are 4 ſtrike of *Corn* for *ſeed*. Laſtly, they ſowe *oats* again (for their common *heathy* grounds will ſeldom afford above one Crop of *barley*) and then their *incloſures* are thrown open to the *commons* again.

24. In

24. In the *Moorelands* they ſometimes *Lime* this *heathy* ſort of land three or four years before they plow it, I ſuppoſe for the ſame reaſon that ſome lay their *marle* on the *green ſword*, *Lime* alſo working downward: others plow *in* the *heath* it ſelfe under furrow, only harrowing the ſurface of the *reverſe* of the turfe, then ſowing, and then harrowing it again: and the year following harrowing and ſowing as before: letting the *heath* in the mean time ſtill remain under, to be fully kill'd and rotted, and enjoying two *cropps* from one plowing, which has been often done at *Ipſton* in this *County*. But the beſt way in moſt mens opinions hereabout to manage this land, is to digg the *turf* and burn it upon the place in *May*, and to blend the *Aſh* with *Lime* before *Michaelmaſs*, and then plowe it, and ſowe the *ſpring* following: for this way their land will laſt 4 years, and give them 4 cropps in this order; firſt a crop of *Barley*, then *Oats*, then *Rye*, and then *Oats* again; and then lay'd down as long, may be plowed again, which they doe but once for any grain whatever all over the *Moorelands*.

25. Their *broomy*, *gorſy* or *furſy*, hot *Sandy* land, they firſt clear of thoſe incumbrances, either by ſtocking them up with the *Mattock*, or drawing them up by the roots by a certain *inſtrument* (which is much the quicker way) that I ſaw at the *Red-Lyon* at *Brereton* in this *County*, made like a ſtrong *Lever*, armed at about 18 inches or two foot from the greater end, with an iron hook or *demi-pheon* ingrail'd within, as they are commonly in *Heraldry*; having on the other ſide, but not diametrally oppoſite, alſo another *hook* fixt, like our barbarous *figure* of 7, as in *Tab.* 32. *Fig.* 2. with which, putting the greater *hook* under the branches of *broom*, *furſes*, or *buſhes*, and if ſtronger than ordinary, returning them under the ſecond *hook* to prevent ſlipping, and then ſetting their ſhoulder under the further end (the inſtrument being about 3 yards long) they eaſily prize up *buſhes*, *furſes*, or *broom* by the very roots. This being done they then *manure* it with *marle*, which doth not only ſo fertilize it, as that it ſhall yeild the *husbandman* 7 or 8 cropps, but as ſome conceive frees it from the *annoyance* of theſe *plants* for ever after: tho' for my part I beleive it is rather the *long tillage* that uſually follows this *manure*, than the *marle* that does it: for let ſuch land be till'd but for 4 or 5 *cropps*, and then be laid downe, this *trumpery* will certainly return again (eſpecially the *gorſe*) tho' not ſo full as before.

26. The *manure* being laid on, they plow and ſow *this* as the *heathy* lands are, only in ſome places the *broomy hot ſandy*

lan[d],

land, they firſt ſowe with *French* or *Buck* wheat, for which they make their *fallows* in *winter*, and *ſtir* them *May* enſueing, allowing *one* ſtrike to the *Acre*, which generally affords them *ſixty* again, and ſo brings their land in order for *Rye*, that they ſowe it upon it after once *plowing*, allowing the ſame quantity of *ſeed* as above, and expecting the ſame return. Their *gouty*, *mooriſh*, *peaty*, *cold black land*, they huſband alſo much after the ſame manner they doe the heathy lands in the *Moorelands*, only they burne the earth to a greater depth; yet theſe will bear little elſe but *Oats*; *white Oats* upon the *gouty*; and *black*, upon the *mooriſh* and *cold black lands*; theſe being the *terræ carioſæ*, the moiſt ſpungy lands that *Cato* warns all people to be well aware of. *Terram cave carioſam tractes*[a].

27. Having done with the *methods* of ordering their *lands*, let us next conſider their *manures* and *ſeeds* a little more particularly in their *quantites* and *choiſe*. As to the former whereof, I find they uſe a great latitude, eſpecially in their *Cow*, *horſe*, or *mixen* dung; which Men many times lay on not ſo much according to their judgment, as according to the ſtock they have of it. Nor is the *condition* of the *ſoile* altogether to be unreguarded: for I find (for Example in *marling* their lands) that upon their ſound grounds whether *Clay* or *Gravelly*, they ſeldom lay above eight or nine ſcore, or two hundred loads on an *Acre*: whereas if it be *cold black land*; *looſe* and *ſandy*, or *looſe wormey ground*; they will commonly lay on *three*, nay I was told of ſome that laid on *four* hundred loads: and indeed for ſuch land as *that*, it cannot be *over-marled*. Where by the way let it be noted, that tho' I ſay they lay on 400 loads, yet I intend no more than on the *Statute Acre*, and not the *cuſtomary Acre* they have in ſome places amongſt their *Copy-hold* lands, which is of no certain quantity; it containing ſometimes at leſt 7 *Statute Acres*, and at other places again perhaps not above *one*.

28. But tho' there is little danger of *overmarling* ſuch ſorts of lands, yet of ſome others there may: and therefore in ſome places they always obſerve the *thickneſs* of their mold above the *Catbrain* (as they call it) i. e. a ſort of barren *clay* and *ſtone* mixt; which if they find but *thin*, they *marle* that land proportionably *leſs*; but if *thick*, they alſo *marle* it accordingly: for to lay a great deal of *marle* upon *thin* land, will produce but a mean, if any cropp at all. In ſhort, this ſort of *improvement* howſoever variouſly uſed, ſtands recommended to us,

[a] *M. Catonis. Lib. de re Ruſtica, tit.* 34.

not only from it's long and continual *use* here amongst us, ever since the days of *Pliny*, who expresly says, that the *Britans* used it in his time; but from its keeping the ground in heart beyond all other *composts*; *Pliny* asserting that it will hold for 50 years together [p]. We find indeed now that it doth not last to any great effect above 8 or 9 cropps, yet I beleive the land may be the better for it for so long time: for this always in some measure keeps up the *heart* of the *soil*, and does not eat it out after the manner of *Lime*. They generally *marle* their lands in *May* and *June*, but for no other reason, but that they have most leasure then, it being betwixt *seed-time*, and *harvest*.

29. Beside the *manures* above mentioned, there are several *others* I met with in the *Country* that must not be past by: such as *dung*, *lime*, and *mould*, rotted together, which laid upon *arable land* makes a good improvement. At another place I was told by an experienced *Farmer*, that he caused all the *Chamber lye* made in his house to be thrown on his *dunghill*, which he profest he found to be very beneficial. Another told me he had laid *drift-Sand* taken out of the *roads* on his *low black land* to very good effect. But the oddest sort of *manure* that ever I met with, was at *Harbourn* in this *County*, where they sometimes sow *Vetches* upon their pooreſt land, with no designe to reap them, but to plow them *in* under furrow before they are *kidded*, meerely as a *manure*, where rotting away they so fertilize the land, that it certainly brings a good cropp the next year. This at first I must confess I thought a strange piece of *husbandry*, but upon consultation found it to be no new thing; *Varro* and *Palladius* both acquainting us of old, that they did not only *Viciam pabularem*, but also *Lupinum*, *cum necdum siliculam cepit*, *ac nonnunquam fabalia*, *si ager macrior est*, *pro stercore inarare* [q]: i. e. that they did not only plow in *Vetches* to fertilize their land, (as I found it here at *Harbourn*) but also *Lupins*, and sometimes *beans*, for the same purpose. At other places in like manner, on their poore light shallow land, that will neither bear *hard-corn* nor *barley*, they sowe a small *white pea*, which when ripe they never reap, but turn in as many *hoggs* as they think the *piece* will fatten, and there let them lye day and night; whose dung will so enrich it, that it will bring a good sword, which being continually stock't, and grased afterward, will remain so many years.

30. As to the quantities of *Corn* sown on the *Statute Acre*,

[p] *C. Plinii Sec. Nat. Hist. Lib.* 17. *cap.* 7. [q] *M. Terent. Varronis de re Rustica Lib.* 1. *cap.* 24. *& Palladii Rutilii de re Rustic. Lib.* 1. *tit.* 5.

and

and the *increaſe* they ordinarily yeild, having ſpoken above: it remains only that we recount the *varieties* of each *kind* ſown here; and by what *rules* they are guided in the *choiſe* of their *ſeed*: there being as many *ſorts* uſed here, and perhaps more, than in ſome richer *Counties*. For beſide the *white-flaxen*, and *bright red wheat* (which are the ordinary *grains* of the *Country*) they now and then ſow the *Triticum Multiplex* or *double-eard* wheat; *Triticum Polonicum* or *Poland* wheat; and *Tragopyrum*, *Buck* or *French*-wheat; all deſcribed above *Chap.* 6. And for *barleys*; beſide the *common long-eard*, and *ſprat*-barley, which are moſt uſed; they ſow ſometimes the *Tritico-ſpeltum* or *naked* barley, of which alſo above *Chap.* 6. And amongſt the *Oats*: beſide the *white*, *black*, and *red* Oats; at *Burton* upon *Trent* I found they alſo ſowed the *Avena nuda* or *naked* Oat; deſcribed, *Ibidem*.

31. About *Swinerton*, *Yarnfield*, and *Shelton* under *Harley*, beſide the little *white* and *gray* peas; they ſowe the white *Rouncival*, the *bigg-brended* pea, and the *early ripe* pea. And beſide the *Summer* and *Winter* Vetches; the *Vicia Sylveſtris*, *ſive Cracca*, the *wild* Vetch or *Tarr*-graſs is ſown in ſome places, but theſe only in *Meddows*. Contrary to that of *Cato*, *Viciam & fœnum Græcum quamminime herboſis locis ſerito*; that one ought not to ſowe *Vetches* or *Fenu-Greek* in graſs grounds[1]. About *Weeford* they alſo ſowe *dills* or *Lentills* on their pooreſt land, which ſerve to feed ſheep and other cattle in winter; they ſow *hemp*, and *flax* too, in ſome places, in ſmall proportions; and for mixed grains, beſide their *Muncorn*, or *wheat* and *Rye* mixt; they ſow *white* and *red* wheat, *common* and *ſprat* barley, both mixt, as was hinted above; and upon their poorer lands, *barley* and *French wheat* mixt, as I ſaw it at *Heyley Caſtle*; and *barley* and *red Oats* mixt, as at *Swinerton* and elſewhere.

32. In the *choiſe* of their *ſeed* (*here* as in *Oxfordſhire*) they have a double reſpect; firſt, to the *grain* it ſelf; and ſecondly, to the *land* it grew on. As to the former of theſe, they take little care, eſpecially in their *ſeed-wheat*, how ſmall or ſhrank it be, ſo it be even corn, and free from *ſmut* and *ſeeds*: for as ſtrong and fair ſeed may ſometimes degenerate and produce that which is ſmall and lean; ſo *vice verſa*, that which is thin and ſhrank (as they call it) will more ordinarily produce that which is fair and full breaſted: contrary to that of *Columella*, *quod vero protinus exile natum ſit, nunquam robur*

[1] *M. Catonis Lib. de re Ruſtic. vit.* 35.

accipere manifeſtum eſt[r]. that lean ſeed, can never produce a fair full Corn. Little more reguard have they of their *ſeed-wheat*, in reſpect of the *ſoil*; for they matter not how poore or hungry the land be their *ſeed* comes off, tho' to be ſown on their ſtrongeſt rankeſt *ſoile*: in general they chuſe corn for *ſeed* that grew on land of a quite different temper from that it is to be ſown upon; thus they almoſt conſtantly chuſe their *ſeed-barley* that is to be ſown on their *clay-lands*, from the *ſandy*; and their *ſeed-barley* that is to be ſown on the *ſandy-lands*, from the *Clay*.

33. And upon this account it is, that in the *Southern* parts of the *County*, they ſometimes ſend for their *ſeed-wheat* out of the *Moorelands* (the corn that grew *Northerly*, thriving naturally better in a *warmer Clime*) and ſo doe the *Moorelanders* out of the *South*: not only for that the *corn* that is fetch't afarr off, ſucks a ſomewhat different juice, and ſo is a better *ſeed* than that poſſibly can be that grew there before: but alſo becauſe if they ſhould ſow *ſeed* that grew in the *Moorelands*, it would degenerat in few years, in that wet mooriſh *Country*, into corn little worth: and therefore here they always ſupply themſelves with the faireſt fulleſt corn they can get from the *South*. Which is very agreeable to the advice of *Palladius*, who after he has told us that all ſeeds doe *locis humidis citius quam ſiccis degenerare*, immediatly adds, *quare ſubinde ſuccurrat electio*[s], that they muſt therefore often help themſelves by a new choiſe. For ſhould they ſtill goe on to ſowe the degenerate ſeed of their own *Country*, it would certainly come at laſt to be very bad corne; not to ſay that it would turn into another *ſpecies*: which tho' a *point* one would not eaſily be brought to yeild to, yet there being ſo many *Examples* of ſuch tranſmutations of *wheat* into *Rye* upon ſuch accounts as theſe, alledged by ſo many good *Authors*, I cannot but recommend the *Experiment* of it, to the Worſhipfull *Rowland Okeover*, *Charles Cotton*, and *Thomas Rudyerd* Eſq[rs]; their habitations lying moſt convenient of any for this purpoſe.

34. For whoſe incouragement herein, I take leave to acquaint them, that one *grain* will ſometimes bring forth *others* of a quite different *ſpecies*; as is teſtifyed not only by our own *Country-man* the famous M[r]. *Goodyer*, who in *An.* 1632 found three or four perfect *grains* of *Oats*, in the middle of an ear of *white-wheat*[u]: but alſo by *Olaus Wormius* who had an ear of *barley*, found and given him by the Rev[d]. *Michael Biſurp* Rector

[r] *Jun. Moder. Columellæ de re. Ruſtic. Lib.* 2. *cap.* 9. [s] *Pallad. Rutilii de re Ruſtic. Lib.* 1. *Tit.* 6. [u] *Gerard's Hiſtory of Plan. enlarged by Johnſon Lib.* 1. *chap.* 46.

of

of the *Churches* of *Greffue* and *Kildebrond*, that contained in it a moyety of *Rye*; the whole ear being made up of 4 rowes of corne, whereof one was of *barley*, and the other of *Rye*, alternatly[w]. Nor have we only inſtances of ſuch partial tranſmutations, but alſo *in tota ſpecie*; which tho' very ſtrange, yet there being ſo many ſaith *Theophraſtus* that have found it true by wofull experience, it can hardly be denyed: πολλοὶ δ', ὡς φάσι, σπείροντες πυρὸν ἢ κριθὰς, ἐθέρισαν ἄλεκας. Many as they ſay having ſowne wheat and barley, and yet reapt nothing but darnel[x]: with whom *Virgil* in his *Eclogs* ſeems fully to agree,

Grandia ſæpe quibus mandavimus hordea ſulcis,
Infælix Lolium, & ſteriles dominantur avenæ[y].

intimating hereby, that *barley* did not only degenerate into *Rye* or *darnel*, but ſometimes into *Oats* too.

35. Which tranſmutations as *Theophraſtus* acquaints us, moſt frequently happen amongſt ſuch ſorts of plants as are pretty near akin: Τὰ δὲ εἰς τὸ συγγενὲς μᾶλλον μεταβάλλει, καθάπερ ἡ ζέα πρὸς τὴν βρίζαν, as it has alſo fallen out (ſays he) in *Spelt* and *Oats*[z]: but moſt commonly of all betwixt *Wheat* and *Rye*: *wheat* not only degenerating in moiſt ſpungy land into *Rye*: but *Rye* alſo in ſtrong and good fertile land, being improved into *wheat*. Whereof *Pet*: *Laurembergius* from the teſtimony of one *Manlius* gives us two pregnant *Examples* that happen'd at *Witteberg*, and in *Thuringia*; at the firſt of which places, and at *Leipſick*, if you dig (ſays he) a *pit*, and return the ſame *earth* again into it, that was taken thence, it will not fill it; a certain ſigne of a light lean ſoile: on the contrary in *Thuringia* if you dig a *ditch*, and fill it again with its own *earth*, there will always remain an *overplus*; as certain an argument of a ſtrong and cloſe ſoile: in the former whereof *wheat* being ſown, in three years time it degenerated into *Rye*; and *Rye* ſown in *Thuringia* in the ſame ſpace of time, improved it ſelf into *wheat*[a]. Now whether any where in the *Moorelands* there can be found ſuch an *Earth* ſo hollow and ſpungy, as not to fill its own pit, as at *Witteberg* and *Lipſick*, I alſo recommend to the tryal of the ſame worthy perſons.

36. That *wheat* will thus degenerat and turn into *Rye*, I find alſo confirmed by *Columella* and *Palladius*, *Authors* of unqueſtionable credit in theſe *Georgical* matters, both unani-

[w] *Olai Wormii Muſæi Lib.* 2. *cap.* 7. [x] *Theophraſt. Ereſii de Cauſis Plant. Lib.* 4. *cap.* 6. [y] *Pub. Virg. Eclog.* 5. *v.* 36, 37. [z] *Theophraſti Ereſii de Cauſis Plant. Lib.* 4. *cap.* 6. [a] *Pet. Laurembergii Horticulturæ. Lib.* 1. *cap.* 25. §. 3. *& Lib.* 1. *cap.* 13. §. 1.

mouſly aſſerting, *Omne tritcum ſolo uliginoſo poſt tertiam ſationem converti in ſiliginem*[b]. But that *Rye* on the contrary ſhould be improved into *wheat*, I can only allege the Authority of *Manlius* for it: though that moſt ſkillfull *Botaniſt* Mr. *Bobart* of *Oxford*, gives us an inſtance that comes pretty near up to it, from his own experience; having improved the ſeed of *primula veris* or common wild primroſe to that height, that it has produced the *primula polyanthos* or *Oxlip*, which falls out not much ſhort of the former inſtance. Theſe ſtrange *tranſmutations* of one *ſpecies* into *another*, *Theophraſtus* aſcribes only to the great diverſities of *Airs* and *Soiles*[c]: But *Varro* will needs add (and perhaps as truly) that the ſame will come to paſs upon *defects* in the *ſeeds*, particularly inſtancing in the *ſeeds* of *Coleworts*, which 'tis reported ſays he, if ſown *older* than they ſhould be, will change the *ſpecies*, and produce *rapes* or *turneps*, and ſo *vice verſa* will *rape-ſeed coleworts*[d]. which if true are inſtances more remote, and conſequently more wonderfull than any of the former: tho' their union in the *Coli-rape* ſeems to argue a probability.

37. If their Lands be ſubject to *blaſting*, *ſmutting*, *Meldews*, or *birds*, they endeavour to prevent them either in the preparing, or choiſe of their *ſeed* before ſowing; or after their corn is come to *ſeed* again. To avoid *blaſting*, and *ſmutting*, they ſteep their grain in *brine* before they ſowe it, which they eſteem a very probable, if not a certain *remedy* for this *deſeaſe* of corn: it having been found by *experience*, that part of a field of *wheat*, the *ſeed* whereof was *brined*, has been clear of *blaſt* and *ſmutt*; whereas the other part where the *ſeed* was ſown without *brineing*; has ſuffered much by both. To prevent *Meldewing*, the moſt pernicious of all the *annoyances*, that *incloſures* and *rich lands* are lyable to, *Thomas Cartwright* pariſh *Clerk* of *Womburn* in this *County*, either mixes his corn with *ſoot* before he ſowes it, or ſowes *ſoot* upon it after the *wheat*'s in the ground: by which means he has preſerv'd the corn from being *Meldewed*, in *lands* always obſerved to have been lyable to it, and this not for one or two, but for ten years together: the more *ſoot* he has mixt or ſown, proving ſo much the better, tho of the two, he finds *mixing* to ſucceed the beſt. Which being matter of fact, and the *cure* conſiderable, becauſe the *diſeaſe* is ſo; it may be worth while perhaps to look into the *cauſes* of this

[b] *Jun. Mod. Columellæ de re Ruſticâ Lib.* 2. *tit* 9. *& Pallad Rutilii de re Ruſtic. Lib.* 1. *tit.* 6. [c] *Theophraſti Ereſii de Cauſis Plant. Lib.* 4. *cap.* 6. [d] *M. Terent. Varronis de re Ruſtic. Lib.* 1. *cap.* 39.

annoyance,

annoyance, and how it comes to pass that *this* proves a *Medicin* for it.

§ 8. First then, as to the *causes* of *Meldews*, some have thought them much occasioned, by an unseasonable time of sowing, and therefore have sown very early, as judging *corn* most subject to this *desease* when sown late: but this cause is certainly but ill grounded, some land *meldewing* at what time soever they are sown. Others again have placed the *origin* of *meldewing* in making *small inclosures*, *corn* not being so lyable to this *evil* in the common open fields: which tho' it must be confest in part, yet this can be but an *accidental cause* at most; for let the *inclosures* be never so *small*, so the land be *poore*, the *corn* that it bears shall rarely be *meldew'd*. It remains therefore that the *adequat original cause* of this *malady*, must be in the *richness* of the *soile*, especially if not naturally, but made such by *dung*, which fattening it, and sending up a moist *viscous steam*, that upon *congelation* in the *Air* falls down upon the *corn* again in a *dew* of the sweetness and consistence of hony, and there sticking to the *straw*, and further harden'd by the *Sun*, so binds up the *pores* of it, that the *nourishing juice* in great measure is prevented thereby, ascending to the *ear*: whence the *grain* becoms *shrank*, as we commonly see it in all *corn* affected with this *distemper*. And this I take to be the true *origin*, and *process* of *Meldewing*.

39. Now if this *steam* when ascended, be any way hindered, being dispersed by the *wind*, or shaken off the *stalks* of the *corn*, when fallen on them, by the *height* or *narrowness* of *inclosures*, it must be owned that they are thus farr an *accidental social cause* of *Meldews*: but for their true *original* I beleive it to be nothing else but that *viscous steam* rais'd by the heat of the *Sun* out of the fattness of the *dung*, which if suck't up, or kept down by any dry adust matter, that it cannot ascend at all, as I suppose it is by the *soot*, the *annoyance* thereby is fully prevented: and any other such *matter* what ever else it be that may hereafter be found out that will doe this, may also very well be thought a proper *remedy* for this *distemper*. If it be objected that this *medicin* is to narrow for the *disease*, there not being quantities of *soot* to be had in proportion to the *lands* that are lyable to *meldews*: I answer that this hinders not but that it is a true *antidote* as farr as it will goe; and that where this cannot be had plentifully enough, other *remedies* must be used, such as *sowing bearded wheat*, whose *ailes* catching the *dew*, do prevent in great measure its falling on the *straw*, and doeing the *mischief* abovemention'd.

40. But

40. But if there be any ſuch *land* that lyes ſo untowardly (as perhaps there may ſome) that neither of theſe can be conveniently had or uſed; my advice is then, that the *order* of *ſowing* it be wholy inverted; that is, that they doe not immediatly ſow *wheat* after the *dunging* ſuch land, but firſt *barley*, then *peas*, and *wheat* laſt: becauſe by this means the *ſtock* of matter in the *dung* that occaſions theſe *Mildews*, will be ſpent in the time of the *barley* and *peas* that are not, before the *corn* comes to be ſown that is, lyable to them. To prevent any *grain*'s being deſtroyed by *birds*, preſently as ſoon as ſown, both *limeing*, and *mixing* it with *ſoot* as above, have been found effectual: but when come to ſeed again (I mean whilſt in the *ear*) I met with no device here that would ſecure it from them, only in a *hemp plat* in the way betwixt *Whitemore* and *Aſhley* I found empty *egg-ſhells* hung upon moſt of the *ſtalks* of the *ſeed-Hemp*, which they told me was a contrivance to preſerve them from the *birds*, which being a very odd one, I could not without injury to the *Readers* diverſion, but take notice of it.

41. Thus having given ſome account of the *tillage* of this *County*, their ſeveral *manures*, the quantities and choiſe of *ſeeds*, and the methods of preventing the *annoyances* of corn: I proceed to the *Inſtruments* they uſe in their *tillage*. And firſt of the *ploughs*, which are generally the ſame here, with thoſe of other *Counties*, nor met I with any thing uncommon relating to them, any where but at *Frodſwell*, where one Mr. *Fernyhough* ſhewed me an *inſtrument* of *Iron* of his own invention ſet through the *plow-beam* behind the *Coulter*, and through the *plow-head*, ſteeled with an edg forward, of excellent uſe in plowing *new ſtock't grounds*, it cuting *roots* aſunder as bigg as ones arm without prejudice to the *plough*; which were it not for the ſtrength that is alſo given it by this *Irons* goeing through the *plow-beam* and *head*, muſt needs quickly be torn in pieces with ſuch work as that. Yet now I remember Mr. *Aſhmore* of *Tamworth* alſo ſent me an account of much ſuch a *plow* with two ſharp *wings* of iron made faſt to the *plow-ſhare*, and following the *Coulter* on each ſide, that he had likewiſe contrived for the ſame purpoſe. They alſo draw their ploughs here both with *Oxen* and *Horſes*; but at many places rather with the *former* than *latter*, becauſe of their turning to a more certain profit, and having leſs of hazard in them: *Oxen* always increaſing in *price* with their *fatneſs*; and if *ſick*, or comeing to any *miſchance*, yet may be kill'd to ſome profit, which a *Horſe* cannot be. They generally *plough* with their *Oxen* in *pairs*, but with their *Horſes* in a *ſtring*, to prevent *poching* the land: and ſo they doe in ſome places with their

Oxen

Oxen too, in very wet ſeaſons, being furniſh't with *half yoaks* for that very purpoſe.

42. After their *Corn* is ſown they cover it with *Harrows*, not much differring from thoſe of other *Countries*; only in the *Moorelands* I obſerved they were ſomewhat leſs than ordinary, but very ſtrong ones. But in the *Moorelands* they never *roll* their barley, I ſuppoſe becauſe they *mow* none, and therefore have no ſuch inſtrument as a *Roll* among them. When their *Corn* is come up (eſpecially their *Oats* and *Barley*) if ſown on a binding-land, and it prove a dry time; at and about *Church-Eyton* they ſometimes *harrow* them again, to break the clodds and looſen the earth, which will make them flouriſh much the better: for tho' it may pluck ſome up, yet it making more ſpring by half than it deſtroyes, they account it advantagious. After the *Corn* is in the *blade*, if it grow too ranck, as at ſome places they eat it off with *Sheep*: at *Alrewas* in this *County* they *mow* off the topps of it before it ſpindles, which they doe with a *reaping-hook*, not a *Sithe*. And before their *Corn* is ripe, about the latter end of *May* or beginning of *June*, they weed their *Wheat*, *Rye*, and *Barley*, and ſometimes *Oats*, with an Iron *digger*, and another inſtrument like a pair of *Smiths-tonges* jagged like a *Raſp* on the inner ſides to take the firmer hold; with which they pluck up the weeds by the roots, which being *perennial plants*, ſpringing annually anew, I look upon as much a better *inſtrument*, than the *hooks* of other *Countries*, which only cut them off above ground, ſo that if *weeded* early, they grow up again before the *Corn*'s ripe, at leſt the next year, from the ſame root.

43. When time of *harveſt* is come, they *reap* their *wheat* and *bind* it after the manner of other *Counties*, and ſo they doe their *Rye*; when bound they gather *nine* ſheaves together, and ſet them upon their butt-ends, and cover them with *three*, and ſo let them ſtand ten or twelve days, according as the *weather* proves, before they carry them; the *Corn* thraſhing the better, the longer it ſtands. Their *barley* they mow with the *Sithe* and *Cadar* in the *South* parts of the *County*, and in ſome places where the land was never *roll'd*, eſpecially where light and eaſily *clodded*; but in the *Moorelands* as they *roll* not, ſo they never *mow* their *barley*, but *reap* it with *hooks*, the land being generally ſo *graſy* there, that they would looſe half their *Corn* ſhould they goe about to *mow* it, eſpecially ſhould there happen a wett ſeaſon, for that it could hardly then be ever got dry again. In the *Southern* parts if clean and free from weeds, they *bind* and *cock* it as they doe *Wheat* and *Rye*: but if *graſy* or have *weeds* in it, they

let it lye to wither two or three days, then *rake* it together and *cock* it as in the *Moorelands*, letting it ſtand five or ſix days before they carry it. Their *oats* they *harveſt* much after the ſame manner they doe their barley. But their *beans* and *peas* they ſeldom *mow*, but *reap* them with *hooks*, letting them lye in *reips* 12 or 14 days, and never turning them but once, *viz.* the day before they carry them.

44. For *Waynes*, *Carts*, and *Waggons*, they uſe the very ſame for carriage of their *Corn*, and other matters, that they doe in other *Counties*; only ſome of them I met with that had certain *peculiarities* that I never ſaw ellſewhere; particularly betwixt *Normacot* and *Weſton Coyney* I met with a *Cart* that had its *floats* ſupported, with *ſtandards* erected upon the ends of the *Axles* without the *nathes* of the *wheels*; which ſeeming much firmer than the uſual ones reſting on the out *timbers* of the *bedd* of the *Cart*, I thought them worth mentioning. And at *Pillaton-Hall* the Seat of the Worſhipfull *Edward Littleton* Eſq; I was ſhewn a ſort of *carriage* indifferently ſerving for a *Cart* or a *Tumbrel*, the *Cart-ladder* or *thripple* both before and behind being to be taken off at pleaſure, and the *Tumbrel* to be made faſt to, or looſed from the *Thilles*; like the *Whiplade* of *Oxfordſhire*[e]. But the oddeſt *carriage* of all I ſaw at *Dimſdale* near *Wolſtanton* (uſed cheifly I ſuppoſe for the portage of *Hay*) made only of two ſtrong pieces of *timber* dragging on the ground, and a *thripple* behind, with which they could carry a pretty parcel of *Hay*, or any ſuch like *commodity*.

45. When they have carry'd their *Corn*, tho' they lodg it in a *barn*, it is yet ſubject to the dammage of *mice* and *ratts*; to free themſelves of which *Vermin* many have been the contrivances of ingenious men: but none that I know of ſo clear of *inconveniencies*, as what was reported to me by Mr. *Alſager* of *Stondon*, who ſeriouſly told me there was nothing would more infallibly drive theſe miſcheivous *Animals* (eſpecially the *Ratts*) from a *houſe* or *barn*, than laying *bird-lime* in their *haunts*: for tho' they are naſty enough in other reſpects, yet being very curious of their *furr*, if but dawb'd with this ſtuff, it is ſo troubleſome to them, that they will even ſcratch their ſkins from their own *backs* to get it off, and tho' he thinks not they ever deſtroy themſelves upon this account, yet they will never abide the place where they have ſuffer'd in this manner. If they have not room to *imbarn* their *Corn*, they commonly ſet it up in *ricks* upon *ſtaddles* as they doe in *Oxfordſhire*, and thatch it with

[e] *Nat. Hiſt. of Oxfordſh. Chap.* 9. §. 105.

broom or *heath* to preſerve it from *rain*, laying at the bottom next the timbers that lye on the *ſtaddles*, a range of *furſe-faggots*, which perhaps prevent the aſcent of *mice* and *ratts* better than the *ſtaddles* themſelves. Which is all concerning *Corn* whilſt in the *blade* or *ſtraw*, but that at ſome places they ſtill thraſh it, after the ancient manner *ſub dio*, as I ſaw them upon the *pavement* in the open ſtreets at *Burton* upon *Trent*. And that they drye their *Oats* in great meaſure with their own *husks*, which thrown upon *turf* ſet archwiſe as in *Tab* 32. *Fig.* 3. burn freely enough.

46. As for *Meddow* and *graſs*-grounds, the *County* being ſo well water'd as has been ſhewn above *Chap* 2. §§ 20, 21. as they muſt be numerous, ſo they are moſt of them very fertile, being not only made ſo by the *land-floods*, but (as on *Dove-bank*, and many other places) by the *ſheeps* dung waſh't down from the hills adjacent to them, which of all *cattle* next that of *Aſſes* is eſteemed the beſt[f]. So that as ſuch lands as theſe want no other *improvement*, the *Reader* muſt not expect any *Methods* or *Rules* whereby they receive any: nor of the *cure* of any *diſeaſes* incident to them, ſuch as *Moſſes*, *Ruſhes*, *Sedges*, &c. for that I found upon enquiry, they were little ſubject to them. But ſuch *grounds* they have too as well as other places, their *boggy*, *peaty*, and *cold-black-lands* producing all theſe, which they cure by *draining*, and *manuring* with *aſhes*: Thus Mr. *Jobber* of *Acton Truſſel* having a piece of wet ground overrun with *Moſs*, by cutting of *trenches*, and ſpreading it all over with the *aſhes* of *Pit-cole* deſtroyed all the *Moſs* the firſt year, wherein he agrees with *Columella*, who in his Chapter, *quemadmodum prata colantur* preſcribes the ſame *Method*, *quorum neutrum tantum prodeſt, quantum ſi cinerem ſæpius ingeras, ea res muſcum enecat.* i. e. that nothing is ſo good to lay upon *Meddows* as *aſhes*, for that they kill the *Moſs*[g]. Which I gueſs they doe upon the ſame principle, that *ſoot* prevents *Meldews*, imbibing the *ſteril juices* that produce ſuch *trumpery*, and ſubſtituting good wholeſom *clover* in the room; which not only the *aſhes* of *coal*, but of *wood*, and *fern* too, are all obſerved to doe; whereof about 30 *ſtrike* ſerve an *Acre*, which they chuſe to lay on in the *Spring*, rather than *Winter*, for that the *rains* waſh them away and deſtroy their virtue.

47. But tho' ſuch *trenching* and *aſhes* will perform this *cure*, yet if it be but barely trenched, there is danger of a *relaps*, becauſe ſuch *trenches* as theſe in a little time will ſwell, and fill

[f] *Palladii Rutilii de re ruſtica Lib.* 1. *tit.* 33. *& Jun. Mod. Columellæ de re Ruſtic. Lib.* 2. *cap.* 15. [g] *Jun. Mod. Columellæ de re Ruſtic. Lib.* 2. *cap.* 18.

up of themſelves, and then the cold *ſteril juices* will return again, deſtroy the *Medicin*, & quickly produce the ſame *diſeaſe*. To prevent which inconveniency, M^r. *Aſtley* of *Tamhorn* drains ſuch Grounds much after the manner as deſcribed in *Oxfordſhire* [h], digging his *trenches* deep, and laying *pebbles* or other ſtones in the bottoms of them, and over them *Heath-faggots* to prevent the *earth's* falling in 'twixt the *interſtices* of the *ſtones*; and then covering all with *earth*, the whole remains an everlaſting *Sough*: the *heath* enduring the *wet*, and ſupporting the *earth*, till ſuch time as 'tis ſettled again into firm land. And this way of *trenching* one would think were ſufficient to all intents and purpoſes; yet M^r. *Sylveſter* of *Weeford* ſeems further to have improved it, by the invention of an *inſtrument* to make ſuch a *Sough* without breaking the ground, but at ſome certain diſtances; being much like a *ſhovel* about 4 foot long, with which he firſt diggs a hole deep and large enough to receive a *Man*, together with his *inſtrument*; then he excavates the *hollow-black-earth* as far as his *inſtrument* will reach both ways, i. e. eight foot beſide the *diameter* of the hole, leaving the upper turf a yard thick above it; then at the ſame diſtances on a *line*, from eight foot to eight foot, he makes other *holes*, and ſo ſtill on as the work requires: and then putting in *Alders* (whereof they have commonly great plenty in all mooriſh grounds) or other fit materialls, as *bruſh-wood*, &c. to keep the earth from falling in and choaking the *Sough*, it will drain the ground to that rate, that many times it will *ſink* a *yard* or more: which he after improves with all ſorts of *Aſhes* laid on dry as above; which kills the *Moſs*, &c. produces the *Meddow-trefoile*, and brings it at laſt to be good *Meddow*-ground.

48. Nor are ſuch *boggy*, *peaty*, and *cold-black-lands*, that bear little elſe but *ruſhes*, &c. only improved by draining and laying them dry by *Soughs*: but where there is conveniency alſo, by being artificially *water'd* or *overflown*. The beſt inſtance whereof that I met with in this *County*, was at *Drayton* park belonging to the right Honorable the Lord *Viſc. Weymouth*, a moſt noble *Patron* of this work; where his Lordſhip having the advantage of the *black-brook* paſſing through it, tho' eſteemed but a *lean hard* water, yet by cutting a *fleme* or main-*carriage* 18 foot broad and ſcarce a yard deep, on the upper ſide of about 35 *Acres* (at one place) of ſuch *land*; and ſmaller *carriages* or trenches 40 or 50 yards aſunder, not above 4 foot wide, all iſſueing from the ſaid main *fleme*; each of theſe ſmaller *carriages* having a yet ſmaller *drain* of a foot wide, to carry off the water again at

[h] *Nat. Hiſt. of Oxfordſh. Chap.* 9. §. 82.

diſcretion, as it was brought on by the greater: his Lordſhip by this means has ſo improved this *land*, tho' the water but bad, (yet much better it ſeems than that *ſteril juice* that it had before, which is hereby drawn off) that in 2 years time, whereas it was thought to be dear of *three*, it became worth at leſt 30 *ſhillings* an *Acre*. The 35 *Acres* in *An.* 1682 bearing 40 loads of good *Hay*, the graſs after being worth 10 or 12 pounds beſide. Another improvement of this ſort of *Land*, if it be full of *Moſſy*, *Sedgy*, *Heathy Hillocks*, as many times it is; is by levelling them by a ſhort ſtrong *Sithe* about 2 foot long, fitted with a ſtrong *Snead*, with which a man at three blowes, can cut up a *Hillock* a yard and ½, or 2 yards wide; and will doe as much in a day as 4 Men can of the ſame work, in the ſame time, with their *ſhovels*.

49. And thus having ſhewn the ſeveral *Methods* of preſerving both *arable* and *paſture grounds* from their inbred *Enemies*, let us ſee what other uncommon *Arts* have been uſed to ſecure them from thoſe without, ſuch as ſpoile by *cattle*, *Hunters*, &c. that is, what extraordinary ſorts of *fencing* have been found out here, for preſerving of their *grounds* unuſual elſewhere. Amongſt which for a *living-fence*, I met with none ſo artificial and ſerviceal as thoſe, made by the *planching* of *Quickſets* i. e. cuting them half through, and laying them croſs the ditch upon the adverſe bank, and laying ſome *earth* upon them to keep them down, firſt *hacking* each branch to make them ſprout, by which means there may be made as many *hedges*, one within another as ſhall be thought fitting, all ſtill proceeding from the firſt roots. And for a *dead-fence*, none certainly better (where the *grounds* afford them) than thoſe *heathy-turf walls* made by M^r. *Aſhmore* on *Packington* heath, which he orders thus: the *turf* being quickly cut by a ſtrong *plow*, the *Workmen* then have little more to doe in order to them, but to cut the plowed turf into ſuitable pieces of two foot long; which, laying the rough ſide outmoſt, and filling up every courſe cloſe, with ſuch mould or ſand as the place affords, will make *walls* ſo firm (notwithſtanding they will ſhrink near a quarter part, which muſt be allow'd for in the making) that with little repairs 'tis beleiv'd may ſtand at leſt 20 years; if well made at firſt, eſpecially if betwixt *Michalemaſs* and *Chriſtmaſs*, for then a great part of the *turf* will grow for ſeveral years, ſo that theſe are not abſolutely *dead-fences* neither: however they are found of ſingular uſe, eſpecially for ſheltering *Sheep* from cold ſtorms and blaſts; which they doe to that effect, that *Sheep* will now abide that *heath* and feed upon *Ling* all the hardeſt winter, which they

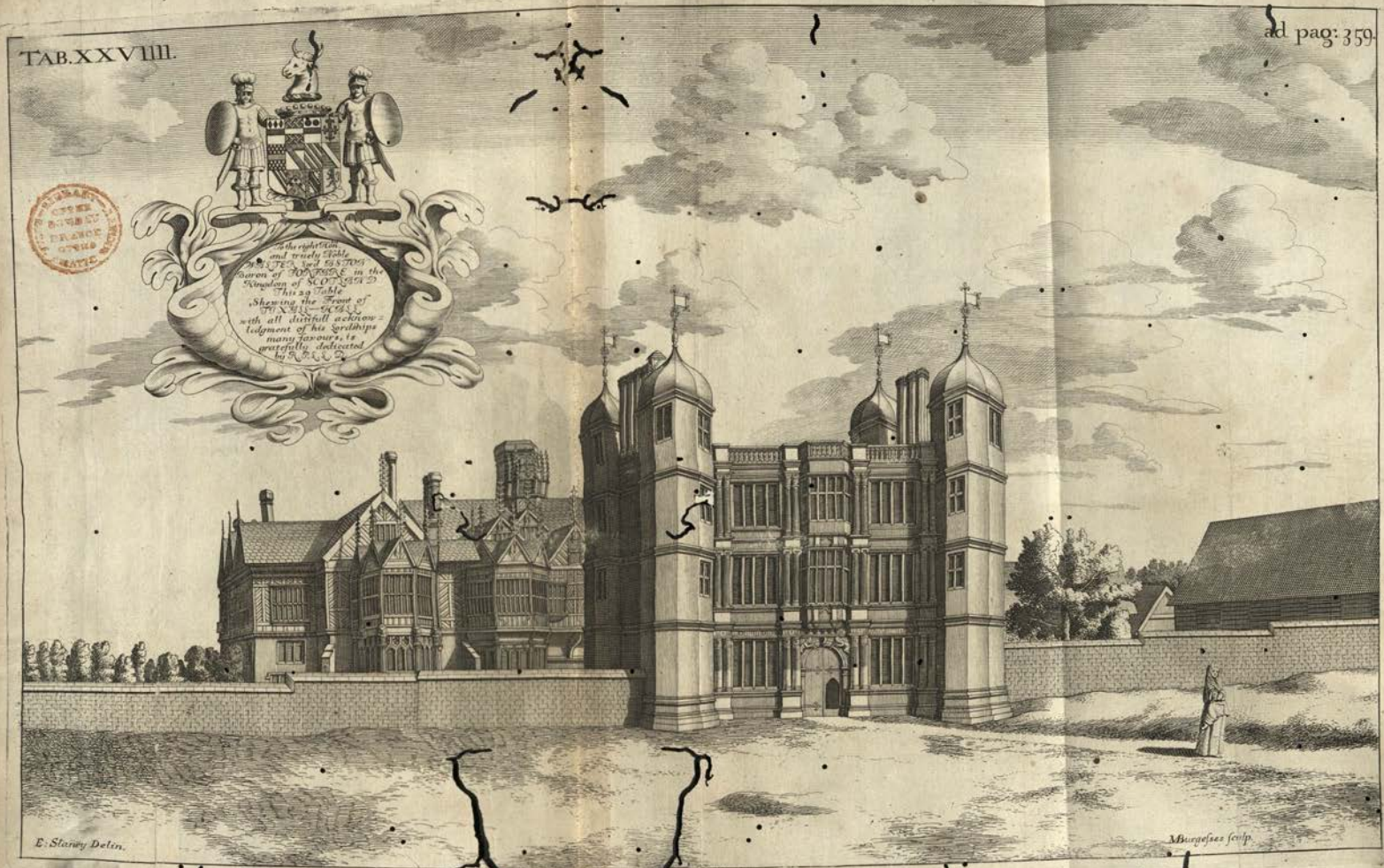
they could never be made to do, before this *contrivance*.

50. Having done with the *village* and *productions* of the *Earth*, I ſhould have come next to the *Arts* of *forming* them into divers ſhapes for their reſpective uſes: but having treated already of the whole *Art* of *Pottery*[i], I have little to add, but that *Charles Riggs* of *New-Caſtle*, has a ſort of *Engin* I never ſaw elſewhere, with which he punches the *bolls* of his *Tobacco-pipes* much quicker and truer than others of his *trade*, unacquainted with this *inſtrument*; which being invented as he told me in the Kingdom of *Ireland*, in juſtice to the *Country* I forbear more of it here. And proceed to a ſort of *arched-Bricks* they make about *Wednesbury*, bent round to fit the *Eyes* of their *Cole-pits*, which are generally about 2 yards in *diameter*, by which they are ſecured from colting in, much better than by *timbers*, as I ſaw ſome pits near that *Town*, thus wall'd up with them for two yards deep, there being no neceſſity of doeing it lower there, the *clay* being after *ſtiff* enough to uphold it ſelf. To which we may add that their *Quadrells* of *peat*, are made into that faſhion by the *ſpade* that cutts them, which is nothing elſe but a thin iron plate bent to a right angle with equilaterial ſides, ſo that it makes the half of an oblong right-angled *parallelepiped* cut *diagonally*. being ſomewhat like the compoſing ſtick of a *Printer*, which at two cuts brings out one of theſe *Quadrells*, which they ſet to dry, as deſcribed in *Oxfordſhire*.[k].

51. Next theſe, follow the *Arts* relating to *Stones*, whereof having already given an account at large of the *Ores* of *Mettalls* (which are generally *Stones*) the ways of *ſmelting* and *refining* them, *hammering*, *ſlitting*, &c. I have little more to account for of this kind, but what relates to *Architecture*, the buildings of this *County* being for the moſt part *Stone*. One houſe indeed I paſt by 'twixt *Chedle* and *Okeymoore*, built only of *turf* in a Conical manner, much like the houſes of the *Indians* near the *ſtraights* of *Magellan*[l]: but for the *buildings* of any note, they are either of *brick* or ſquared *ſtone*, whereof ſome are *privat*, others *publick*; and the latter, either *civil* or *Eccleſiaſtical*; and may all be conſidered either in the whole, or *parts*. Of the *private ſtructures*, the moſt eminent in the *County*, are thoſe whoſe *proſpects*, the *Reader* has or will find engraven in this *Work*, wherefore I ſhall forbear ſo much as nameing them here. Yet it muſt not be deny'd but there are as *fine buildings* not repreſented in *Sculp-*

[i] *Chap.* 3. *from* §. 25. *to* §. 28. *incluſive.* [k] *Nat. Hiſt. of Oxfordſh. Chap.* 3. §. 41. [l] *See Sr. John Norbury's Map. of the ſaid Straights.*

ture,


TAB. XXVIIII.
ad pag: 359.
To the right Hon.
and truely Noble
HASTER Lord BASTON
Baron of FONTERE in the
Kingdom of SCOTLAND
This 29 Table
Shewing the Front of
TIXELL-HALL
with all dutifull acknow-
ledgment of his Lordships
many favours, is
gratefully dedicated
by RALLY
E: Stanley Delin.
M Burgesses sculp.

ture, as any that are; ſuch as the *Seat* of the right Worſhipfull S^r. *Thomas Wilbraham* at *Weſton* under *Lyzard*, the *Front* whereof I could have gladly engraven, but that forbidden by the *Proprietor*, (though a generous *contributor* to this work) whether out of modeſty, or any other privat reſpects, I pretend not to know.

52. The *Seat* of the right Worſhidfull S^r. *Richard Aſtley* at *Pateſhull* built all of ſquared *Stone*, which if taken altogether with the *Gardens* and *Waterworks*, the *Viſta's* and *Walks*, ſet with double rows of trees for number length and bredth exceeding all in the *County*; not forgetting the many ſtately *gates* of iron-work curiouſly painted and guilt, leading into them; with the *Mounts* and places of *Repoſe* at the ends: which, I ſay, if taken all together, is certainly the moſt accompliſh't and delicious *Manſion* in the whole *County*, ſhould alſo have been exhibited in *tail-douce*. And ſo indeed it was intended, but that the *Deſigne* of the *Graver* fell ſo very much ſhort of the real thing it ſelf (the many *trees*, *gates*, and *buildings* hiding each other) that it had been an abatement or diſparagement to its true worth to have given the *Proſpect* of it. The *Seats* of the right Worſhipfull S^r. *Walter Wrotteſley*, at *Wrotteſley* and *Purton*; of S^r. *Henry Littleton* of over *Arley Baronet*; of S^r. *John Perſhall* of great *Sugnall* Baron^t; of S^r. *Francis Lawley* of *Cannal* Baron^t; of S^r. *Henry Gough* of *Pury-Hall* K^t. of S^r. *Thomas Whitgreave* of great *Bridgford* K^t; of *Ralph Sneyd* of *Bradwall* Eſq; of *Thomas Kinnerſley* of *Loxley* and *Uttoxater* Eſq; and divers others; doe all likewiſe ſhew a great deal of preſent, or paſt magnificence: and yet in all theſe eminent private *Gentlemens* Seats, could I find little or nothing extraordinary in the *whole*.

53. But in the *parts* of ſeveral of them there are divers things obſervable: particularly the *Gate-Houſe* of *Tixall-Hall*, the Seat of the right Honorable *Walter* Lord *Aſton* an eminent Encourager of this deſigne, is a curious piece of *Stone-work*, well worthy notice; and is here preſented together with the houſe, to the *Readers* view, *Tab.* 29. it is remarkable alſo that the *windows* of the houſe, tho' very *numerous*, are ſcarce two alike; and ſo 'tis at *Chillington*, the *Seat* of the ancient family of the *Giffards*. It is obſervable likewiſe that the *tunnells* of the *Chimneys* in both theſe houſes are very numerous, the Hall *Chimney* at *Chillington* having no leſs than 8 *tunnells* to one *hearth*; the *fretwork* of the *tunnels* alſo in both theſe Seats being ſo very various, that ſcarce two agree: whence 'tis eaſy to collect that the *beauty* of a *ſtructure* in thoſe days (which ſeemes to be *temp. Hen.* 8) did

did not conſiſt, as now, in *uniformity*; but in the greateſt variety the *Artiſt* could poſſibly ſhew.

54. The *Stone-rail* upon the wall built about the *Green-court* before *Trentham* houſe, is a pretty piece of work, it being ſupported with *Roman Capital Letters* inſtead of *balliſters*, containing an *Inſcription* not only ſetting forth the name of the ancient *Proprietor* and *builder* of this *Seat*, but the *time* when it was done: the *Numeral Letters* put together making up the *year* of our *Lord*, when it was finiſh't *viz. An.* 1633, which will appear by the *Numerals*, ſet in *Roman Capitals*, in the *Inſcription* here annext: the other *Capitals* being all ſet in *Italick*.

CAROLO BRITANIÆ REGE RICARDVS LEVESON EQVES BALNEI ÆDES HASCE HIC FIERI VOLVIT.

there being two DDˢ; four CCCCˢ; four LLLLˢ; five VVVVVˢ; and eight IIIIIIIIˢ; which make up that *Date*. And the *conveyance* away of the *water* which commonly comes in under outer doores of houſes that lye open to the weather, which I ſaw in the *Summer-houſe* of the *Garden* at *Aqualat* was effectually done by a *groove* cut in the *Stone-Threſhold* juſt under the doore, and a hole from it through the body of the *Stone* to let out the water, is a uſefull *contrivance*. Which is all I met with remarkable in *Stone-work*, unleſs it be worth notice, that they ſometimes make their *Ovens* in the *Moorelands* of this *County* (which are often of *Stone* as well as *brick*) at a *diſtance* from their houſes; whereof I ſaw one near *Madely* park-pale, the remoteſt of any, but for what conveniency ſo placed, there being no body at home, I could not learn.

55. Of *publick* buildings whether *Eccleſiaſtical* or *Civil*, the moſt eminent in the *County* is certainly that of the Cathedral of *Lichfield*, it challenging a due *obſervance* at a great diſtance by three ſuch lofty *Spires*, *procul veluti ſalutantes advenas*, as no Church in *England* can boaſt the like; and *reverence* near at hand, being finely adorned with *Studds* and *carved* work: *ut* juxta *intuentibus* (as *Eraſmus* ſays of the Church of *Canterbury*) *religionem incutiat*[m]. The *tracery* in the *Stone-work* of the *Weſt-window*, as well as the *glaſing*, the gift of his preſent moſt Sacred *Majeſty* King JAMES the ſecond, is a curious piece of *Art*, and commands due attention: and ſo doth the *Imagery* at the *Weſt* end of the *Church*, which falls little ſhort of that of *Wells* in the number, tho' the *Stone* not ſo good. In ſhort, the *Architecture* of this *Church* if taken all together, tho' moſt highly

[m] *Deſid. Eraſm. Rot. Colloq. de peregrinatione Religionis ergo.*

highly commendable; yet there is one thing in it, that ſeems not ſo *artificial*, it not being placed due *Eaſt*, and *Weſt*, as other *Churches* are, but declining no leſs than 27 degrees from the true points; as I caſually found by my *Compaſs* when I was upon the battlements of the middle *Steeple*, to take the manner of its *bearing* to other places in order to my *Mapp*: the *Eaſt* end declining ſo much to the *North*, and the *Weſt* end to the *South*. Which as it ſhews how ignorant they were in thoſe times, as to matter of accuracy, even in the meaneſt parts of *Mathematics*; ſo it ſeems to inſtruct us on the other hand at what *time* of the *year* the *Church* was founded.

56. For whether the *Compaſs* were firſt brought in uſe in this *Weſtern* part of the World, by *Paulus Venetus*, who as ſome beleive learned the *ſecrets* of it in *China*, and brought it into *Europe An.* 1260[n]; Or was firſt invented by *John Goia* a Citizen of *Malfi* in the Kingdom of *Naples* An. 1300[o]; yet both theſe being long after the *foundation* of this *Church*, they could have no help from this *Inſtrument* to guide them in the placing it. So that it is very probable all the direction they had in thoſe elder times, was from the *Sun* it ſelf; which riſing in the *Summer* more or leſs to the *Northward*, and in *Winter* proportionably to the *Southward*, of the *Equinoctial-Eaſt*; in all likelyhood might occaſion ſo many *Churches* not to reſpect the due *Eaſt*, and *Weſt* points, but to decline from them more or leſs, according to the early or late *ſeaſon* of the *year*, wherein they were *founded*. Which if granted (as I cannot ſee why it ſhould not) this *Church* muſt be *begun* either on the 27 of *April*, the *Sun* then poſſeſſing the 17 degree of ♉, in its acceſs to the *Summer Solſtice*; or on the 30 of *July* the *Sun* then being in the 17 of ♌ in its receſs from it; the *Sun* in the reſpective *degrees* of both thoſe *Signes* being exactly removed 27 degrees from the *Equinoctial Eaſt*, *Northward*.

57. For which very reaſon alſo the *Church* of *Alveton* in this *County*, which declines in like manner from the true *Eaſt* 32 degrees *Northward*, ſeems to have been founded either on the 3d. of *May*, the *Sun* being then in the 22 of ♉, in its acceſs to the *Tropic* of ♋; or on the 23d. of *July*, the *Sun* being then in the 10 of ♌, in its receſs from it; the *Sun* in the mentioned *degrees* of both thoſe *Signes*, being diſtant from the *Equator* (*Northward*) juſt 32 *degrees*. And ſo *vice verſa*, may the *foundations* of the *Churches* that decline *Southward*, be computed according to the *diſtance* of their reſpective *receſſes*. If it be objected

[n] *Gul. Gilberti de Magnete Lib.* 1. *cap.* 1. [o] *Ibidem.*

that the *foundation* of the *Church* of *Lichfield* is faithfully *Recorded*, and that it agrees not at all with the above mentioned Conjecture; the *Cronicle* of *Lichfield* expreſſly acquainting us, that it was founded on the 2 of the *Calends* of *January*, *An.* 700 [p]. It muſt be anſwer'd that the *Church* mention'd in the *Chronicle*, is not the *Church* now ſtanding, there having been two before this; one, built by *Jormannus* the immediat predeceſſor of S[t]. *Ceadda An.* 666 [q]. and the ſecond by *Hedda*, Biſhop of *Lichfield* and *Legeceſter*, who tranſlated the body of S[t]. *Ceadda* into it, which is the *Church* that was founded the *ſecond* of the *Calends* of *January* as above alleged: this now ſtanding being built by *Roger* de *Clinton* who was made *Biſhop* of this *See*, *An.* 1128. *temp. Hen.* 1. *Qui Eccleſiam* Lichfeldiæ *erexit tam in fabrica, quam in honore* [r]. which, as I gueſs by the *ſtanding* of it, he began about *one* of the times above ſpecifyed.

58. Now whether the *declination* of *Churches* from the *Equinoctial Eaſt*, ought to be eſteemed any *diminution* to them, or noe? depends wholy upon the reaſonableneſs of the uſual preference of that *quarter* of the *World*, in this reſpect, before the reſt; which remains to be conſidered. In the examination whereof I find it plain, from the ancienteſt *Records* of time whatever, that the *Deity* was ever thought to have a more ſpecial preſence in the *Eaſtern* parts, as well amongſt *heathens*, as the *Worſhippers* of the true *God*. Τὸ θεῖον κίνουν (ſays the great *Philoſopher*) ἀνάγκη ἢ δὲ ἐν μέσῳ, ἢ ἐν κύκλῳ εἶναι. i. e. that the firſt *Mover* muſt neceſſarily be either in the *Center*, or *Circumference*, ἀλλὰ τάχιστα κινεῖ τὰ ἐγγύτατα τοῦ κινοῦντος but motions are moſt rapid near the firſt impreſſion, Ἐκεῖ ἄρα τὸ κινοῦν. therefore the *Mover* muſt be there [s]. Now we all know by the *motions* of the *Starrs*, that the *Heavens* move ſwifteſt in the very *Equator*, therefore the firſt *Movers* place muſt be in that *Line*. Nor did the *Philoſopher* think neither, that he was preſent alike to all *parts* of that *line*, πᾶσα δὲ κίνησις, ὅση κατὰ τόπον, but that all *motion* was more eſpecially accommodated to that part ὅθεν ἡ ἀρχὴ κινήσεως, whence the *motion* did begin [t]: which to ſuch as imagin'd the *Earth* to be a *rotundum planum* terminated by the *Horizontal Segment* of the *viſible Heavens*, could not appear any other than the *Eaſtern* part, where the *Sun* aroſe. Upon which account *Aben Ruſh'd* or *Averroes* alſo bears us witneſs, *quaſdam Leges adoraſſe Deum verſus Orientem* [u]. And *Porphyrius* acquaints

[p] *Ex Vet. Codice MS.* Chronicon Lichfeldenſe. *nuncupat. in Bibliotheca* Cottoniana. [q] *Fran. Godwini de Præſulibus Angl. inter Coventr. & Lichfeldenſes.* [r] *Ex eodem vet. Codice MS. ſupra citat.* [s] *Ariſtot. Phyſicorum Lib.* 8. *cap.* 15. *text.* 24. [t] *Ariſtot. de Cœlo. Lib.* 1. *cap.* 2. *text* 5. [u] *Averrois Cordub. in Phyſ. Ariſtot. Lib.* 2. *text.* 3.

us

us Θεοῖς μὲν τὰ ἀνατολικὰ οἰκεῖα, that the *habitations* of the *Gods* were in the *Eaſtern* parts[w]. Which is the reaſon given by *Ginnius Capito*, as quoted by Mr. *Gregory* (who it ſeems ſpake like an *Aſtronomer* looking *Southward*) why the *left*, or *Eaſtern Omens*, were always eſteem'd more proſperous than the *South*[x].

59. Alſo the *Jews* (*God* having planted *Paradiſe*, *Eaſtward* in *Eden*, and the *tree* of *life* in the *Eaſt* part of that *Garden*, as appears by the *Cherubims*, and *flaming-ſword*, placed there to keep the way of it) always ſhewed the greateſt *reverence* to this *quarter* of the *World*, and worſhiped that way; as the *Hebrews* deliver *Adam* himſelf did, nor is their tradition unreaſonable: for it cannot be imagined upon what other account it was, that when he gave *names* to *things* by divine inſtitution, he ſhould call the *Eaſt*, *Kedem*, which is *before the face*; and the *Weſt*, *Achor*, i. e. the *back part*; and conſequently the *North*, *Smol*, that is the *left*; and the *South*, *Teman*, or the *right hand*[y]. Nor did *God* only ſhew a particular reguard to this *quarter*, preſently after the *Creation*; but took occaſion all along, in after ages, in the times of the *Prophets*, to ſhew it to be the place of his more *ſpecial preſence*. Thus in the *Viſions* of the *Temple*, we read, *that the glory of the God of Iſrael came from the way of the Eaſt*[z], and *entred the Temple through the Eaſtern gate*; *wherefore this gate was ſhut up*, *that no man might enter by it*, *becauſe the Lord God of Iſrael had entered in by it*[a]. Nor indeed could it be otherwiſe, ſince it ſeems plain enough that the *throne* of *God* is placed in this part of the *heavens*; *David* in his exhortation to praiſe *God* for his wondrous works, expreſſly bidding us, to *Sing unto him that rideth upon the heavens of heavens Eaſtward*[b], as the LXX rightly read it, the ſame word *Kedem* being uſed here as in *Gen.* 2 v. 8. where *God* is ſaid to have planted *Paradiſe* in *Eden*, *Eaſtward*, not [*which was of old*] as tis render'd in our common Engliſh Bible, which would have been very incongruous. To which add that when *Lucifer* exalted himſelf above the ſtarrs of heaven, he ſaid in his heart, *He would ſit in the ſides of the* North[c] that is ſays *Magius* in the left ſide of the *North* or *Eaſtern* part of heaven, where the *throne* of *God* is thought to be[d].

60. Upon which account not only *Adam*, but the whole *world* beſide, till about *Abrahams* time, for the ſpace of 3328 years, worſhiped toward the *Eaſt*, as the learned Mr *Gregory*

[w] *Porphyrii Philoſophi de Antro Nympharum Lib.* 13. *p.* 182. *Edit. Rom.* 1630. [x] *J. Gregory's Obſervat. upon ſome paſſages of Scripture Chap.* 18. [y] *Ibidem.* [z] *Ezekiel* 43. *v.* 2. [a] *Ezekiel* 44. *v.* 2. [b] *Pſalm.* 68. *v.* 32, 33. [c] *Iſaiah* 14. *v.* 13. [d] *Hieronimi Magii de Mundi exuſtione Lib.* 5. *cap.* 9.

tells us from the teſtimony of *Rabbi Maimon*, the great S^t. *Ephrem* and others, in the *Arabic Catena:* which original principal, and (as it ought to have been) everlaſting *Ceremony* by an error of the *Perſian* and *Caldean* Worſhippers degenerating into an *Idolatry* of the *Sun*; *Abraham* (ſaith the ſame *Rabbi Maimon*) by the inſtinct of *God*, appointed out the *Weſt* for the *Hebrew* worſhip after[e]: and that therefore the *Temple* and *Tabernacle* were placed that way, and that all their ſacrifices were offerd up *Weſtward*; as all the ordinary ſervices and devotions of the *Temple* were in *Aarons* time[f], except that ſolemn Anniverſary of *Lev.* 16. v. 34. in performance whereof, he placed himſelf notwithſtanding, as the ſame *Rabbins* ſay, on the wrong or backſide of the *Ark*, and *ſprinkled* (as he was commanded) *the blood of the Bullock and Goat upon the mercy ſeat* Eaſtward, *to make an attonement for the ſins of himſelf and people*[g]: whereby he prefigured him, who by his *owne blood entered in once into the holy place, and obtained eternal redemption*[h], whoſe name *God* the *Father* was pleaſed to admit ſhould be called the *Eaſt*[i]: ſo peculiarly appropriated was this part of the world to the *divine preſence.*

61. Nay *God* vouchſafed himſelf to call his beloved *Son* by that *Name. Adducam Ego* (ſays he by the Prophet *Zacharie*) *Servum meum Orientem. Behold I will bring forth my Servant the* Eaſt, as it ſhould be render'd[k]. Again ſays the ſame *Prophet, Ecce Vir, behold the man whoſe name is* צמח *Tſemach*, that is, the *Eaſt*[l]: which I am not ignorant Mr *Poole* and other learned men, render *Germen*, a *branch*, and ſo our *Engliſh* verſion now in uſe[m]: but as *Scaliger* and Mr *Gregory* both well obſerve, not ſo rightly, the *Prophecie* being to be read, as tranſlated by the LXX. Ἰδοὺ ἀνὴρ ἀνατολὴ ὄνομα αὐτῷ. *behold the Man whoſe name is the* Eaſt. Which being the very ἀνατολὴ that is referred to by S^t. *Luke*, where he ſays that our Saviour is ἀνατολὴ ἐξ ὕψους[n], it cannot well be rendered *Germen*, it immediatly following, *to give light to them that ſit in darkneſs*[o]. And thus as it is plain that *God* vouchſafed our *Saviour* ſhould be called by the name of the *Eaſt*, ſo it ſeems as evident, that this was the place from whence he was to come: and therefore ſays *Baruch* περίβλεψον πρὸς ἀνατολὰς Ἰερουσαλὴμ, καὶ ἰδὲ τὴν εὐφροσύνην, &c. *Look about thee* O Jeruſalem *toward the* Eaſt, *and behold the joy that cometh unto thee from* God[p]: περίβλεψον πρὸς ἀνα-

[e] *Mr. Gregory's Obſervations upon ſome paſſages of Scripture. Chap.* 18. [f] *Ibidem.* [g] *Leviticus* 16. *v.* 14, 15. [h] *Hebrews* 9. *v.* 12. [i] *Zach.* 6. *v.* 12. [k] *Zach.* 3. *v.* 8. [l] *Zach.* 6. *v.* 12. [m] *Vid. Matt. Poli. Synopſin Criticorum, in Loca.* [n] *Luke.* 1. *v.* 78, 79. [o] *Mr. Gregory's Obſervat. upon ſome paſſages of Scripture Chap.* 18. [p] *Baruch.* 4. *v.* 36.

τολὰς, i. e. says *Severus* and *Olympiodorus*, as quoted by Mr. *Gregory* πρὸς τὴν τῆς δικαιοσύνης ἥλιον, τὸν κύριον ἡμῶν Ἰησοῦν Χριστὸν[q]. toward our Lord *Jesus Christ* the *Sun* of righteousness, who was to come down from heaven and be made Man. Who is also the righteous man the Prophet *Isaiah* prophetically says, *God raised*, that is, would raise, *from the* East *to rule over Kings*[r]; and was to be the *ravenous bird*, God said he would *call from the* East, *to execute his counsell upon the unrighteous*[s], yet should *rise with healing in his wings unto such as feared his Name*[t]; and the *righteous* East *of Jeremiah*, that God promised *he would raise unto David, to reigne, and execute judgment and justice in the Earth*[u].

62. Nor is it less remarkable, that at the time of his *birth*, his *starr* appeared in the *East*[w], and brought the *Wise Men* thence too[x]; neither must it be omitted that the *Angels* sent from God with the *Gospel* of this *Nativity*, came also from the *East*, as Mr. *Gregory* informes us, from the *Nubian Geographer*[y]; it is observable likewise that he was born in the *Eastern* parts of the world; and as our *Country-man* Venerable *Bede* acquaints us out of *Adamannus*, *in quodam naturali semiantro in* Orientali *angulo Civitatis* Betheleem, in a kind of natural Cave in the *Eastern* part of *Bethlehem*[z]. Also at the time of his *death* as *Durandus* testifies, *Dominus crucifixus ad* Orientem *respiciebat*, he was crucifyed with his face toward the *East*[a]; and after his death at his *resurrection* according to the most ancient *traditions* of the Church, he ascended again from whence he came, into the *eastern* part of heaven, ἀναλαμβανόμενος πρὸς ἀνατολὰς ἀνεφέρετο saith *Damascen*, when he was received into heaven he was carryed up *Eastward*[b]; with whom agrees *Origen*, *in Cœlum post resurrectionem ad* Orientem *ascendit*, that at his resurrection he ascended into heaven toward the *East*. As he was seen after by *John* the *Divine*, having the *Seal* of the living God, the *Angel* that ascended from the *East* (or rising of the *Sun*) being pronounced by some of the best of the *ancients*, to be *Christ* himself*. Under which name it was, as *Tacitus* informs us (tho' altogether unacquainted with the meaning of the thing) that, not many years after his resurrection, he triumphed over the *Jews* in the destruction of *Jerusalem*; expressly saying that many were perswaded *antiquis Sacerdotum literis contineri*, that it was found at that time a-

[q] *Mr. Gregory, loco supra citato.* [r] *Isaiah* 41. *v.* 2. [s] *Ezech.* 46. *v.* 11. [t] *Malachi* 4. *v.* 2. [u] *Jeremiah* 23. *v.* 5. [w] *Matthew.* 2. *v.* 2. *and* 9. [x] *Matthew.* 2. *v.* 1. [y] *Mr. Gregory's Observations, loco supra citato.* [z] *Bedæ Presbyteri Ecclesiast. Hist. Lib.* 5. *cap.* 17. [a] *Gul. Durandi Rational. Divin. Officior. Lib.* 5. *cap.* 2. [b] *Joan. Damasceni Orthodoxæ fidei Lib.* 4. *cap.* 13. * *Revelat.* 7. *v.* 2.

mongſt the ancient *Records* kept by their *Prieſts*, *eo ipſo tempore ut invaleſceret* Oriens, that about that time the *Eaſt* ſhould prevail [c].

63. And if he aſcended toward the *Eaſtern* part of heaven, we need not much doubt but he will return the ſame way, at his ſecond coming: which is not only made good ſaith *Paulus de Palatio* (as quoted by Mr. *Gregory*) by the common conſent of all Chriſtians, *Credentium quod in* Oriente *humanitas* Chriſti *ſedeat, ab eo ergo loco veniet ubi nunc eſt*, beleiving that our *Saviour* as to his human nature ſitteth in the *Eaſt*, and that thence therefore he ſhall come [d]; and more particularly by *Damaſcen*, who not only aſſerts that he aſcended *Eaſtward*, ᾗ ὅπως αὐτῷ οἱ Ἀπόστολοι προσεκύνησε, ᾗ ὅπως ἐλεύσεται, οὗ τόπον ἐθεάσαντο αὐτὸν πορευόμενον εἰς τὸ ὕψος, but that the *Apoſtles* alſo pray'd to him the ſame way, and that he ſhould return in like manner, as they had ſeen him goe into heaven [e]; but ſeems moſt amply confirmed by the *Scriptures* themſelves, he himſelf having ſaid, *that as the Lightening cometh out of the* Eaſt, *and ſhineth in the* Weſt, *ſo ſhould his coming be* [f]; and the *Galathians* being admoniſh't, *that he ſhould come in like manner, as they had ſeen him goe into heaven* [g]: which *texts* compared together, prove as well that he aſcended, as that he ſhall come again *Eaſtward*: from the place where the *thrones* of the living *God*: and the *Lamb* are; from the heavenly *Paradiſe* or place of abode of the Soules of juſt men made perfect; which as *Irenæus* tells us, he received it, *ab Apoſtolorum diſcipulis*, was in the *Eaſtern* part of the third heaven, whither St. *Paul* was catch't up, and heard *unſpeakable things* [h]. Which glorious place the ſcholiaſt *Pletho* moſt aptly calls τὴν ἀμφιφαῆ τῆς ψυχῆς χώρην, *the all enlightened receſs of Souls* [i]; and *Pſellus* yet more agreeably, περὶ τὸ πατέρα χορὸν τῶν θείων δυνάμεων, *a Choir of divine powers encircleing the Father* [k]; where he ſeems to reſide in a more ſpecial manner, together with the *Son, from whence he ſhall come to judg both the quick and the dead*: for tho' it be true that *God* is in all places, and in ſome reſpects in all places alike; yet it is certain he is otherwiſe in heaven, than hell; and ſo in all likelyhood, in one part of heaven, than another; and tho' it be ſaid of the hour of the day of *Judgment* no man knoweth [l], yet it is not ſo of the place from whence he ſhall come to it.

[c] *C. Corn. Taciti Hiſtoriar. Lib.* 5: [d] *Mr. Gregories Obſervat. loco ſupra citat.* [e] *Joan Damaſceni, loco ſupra citat.* [f] *Matthew* 24. *v.* 27. [g] *Acts.* 1. *v.* 11. [h] *D. Irenæi Lugdunens. Epiſc. adverſus Gnoſtic. Hareſ. Lib.* 5. *cap.* 5. [i] *Vid. Plethonis Scholia in Oracula Magica Zoroaſtri. in princip.* [k] *Vid. Pſelli Scholia in Oracula Zoroaſtri Caldaica. pp.* 87. *edit. Paris An.* 1599. *Matthew* 24. *v.* 36. 42. *and Mark* 13.

64. All

64. All which being considered, the *Christans* as well as *Jews*, seem to have had very good reason to make their addresses that way, they were so well assured the divine *Majesty* had his cheif abode: as indeed they were appointed to doe by the *Apostolical Constitutions*, καὶ, μετὰ τοῦτο συνφώνως ἅπαντες ἐξαναστάντες, καὶ ἐπ' ἀνατολὰς κατανοήσαντες, προσευξάσθωσαν τῷ Θεῷ τῷ ἐπιβεβηκότι ἐπὶ τὸν οὐρανὸν τοῦ οὐρανοῦ κατ' ἀνατολάς. Then rising up unanimously, and turning toward the *East*, let them pray unto *God* which sitteth upon the heaven of heavens in the *Eastern* part[m]: whence it is plain that the more special presence of the *Deity*, that was anciently beleived to be in that part of the world, was the true *Original* of this *Christian custom*; notwithstanding what is alleged by *Durandus*, that Pope *Vigilius* instituted this practise, to distinguish the *Christans*, from other *Sects*; the *Mahometans* worshiping toward the *South*, and the *Jews* toward the *West*[n]. Nor did the *Christans* only pray toward the *East*, but upon this account also built their *Churches*, and placed their *Altars*, suitable to this purpose: which *Belethius* thought of so great concern, that he judg'd it absolutely necessary, *& omnino quoque necessarium est ut ædificaretur uersus* Orientem, *hoc est, versus solis* ortum Æquinoctialem, *nec vero contra æstivale solstitium, ut nonnulli & volunt & faciunt*, i. e. that it was altogether necessary that a *Church* should be built to the *Equinoctial East*, and not toward the *Summer Solstice*, as some say and doe[o]. And thus we find *Patiens* Bishop of *Lyons*, as *Sidonius* acquaints us, built his new *Church*.

Ædes celsa nitet, nec in sinistrum,
Aut dextrum trahitur, sed arce Frontis
Ortum *prospicit* Æquinoctialem[p].

65. Which having been the practise of the ancient *Church*, and by how much no question the more accuratly done, by so much always esteemed the better, I cannot but allow, that this great *declination* of the Church of *Lichfield* from the *Equinoctial East* (especially if examined by the ancient rule) must be some blemish to it: unless it may be thought, that its pious founder *Roger* de *Clinton*, upon reading the 14 and 13 of *Isaiah*, with *Hieronymus Magius*[q], did rightly expound the *sides of the North*, not to be due *East*, but some distance from it *Northward*, and that the *throne* of *God* might be placed there, and for this cause

[m] Διαταγαὶ τῶν ἁγίων Ἀποστόλων Βίβ. β. Διάταγ. νζ. [n] *Gul. Durandi Rational divin. offic. Lib.* 5. *cap.* 2. [o] *D. Joh. Belethii divin. offic. Explicat. cap.* 2. *in fine.* [p] *Apollin. Sidonii. Epistol. Lib.* 2. *Ep.* 10. [q] *Vid. Hieron. Magium de mundi exustione; Lib.* 5. *cap.* 9.

set

ſet his *Church* induſtriouſly ſo. However it were, I am ſure his Succeſſor *Walter Langton*, who founded our *Lady's Chappel* beyond the *Choir*, 150 years after, thought it ill placed, having rectifyed the miſtake of his *predeceſſor*, and built it pointing more *Eaſtward*, whence it is that the walls of the *Chappel* ſtand quite bevil to thoſe of the *Church*, as may eaſily be perceived even by an incurious Eye. The *Church* notwithſtanding deſerves its due *praiſe*, and ſhould have been here repreſented in *Sculpture*, but that it has been done already in two other *Hiſtories*, once by D^r. *Fuller* at the charge of M^r. *Aſhmole*[r], and again by S^r. *William Dugdale* in his *Monaſticon Angl*[s]. Wherefore I have choſe rather to give the proſpect of it, together with that of the Royal City of *Lichfield*, which the *Reader* may here view, *Tab.* 30.

66. To which let me add in mitigation of the diſhonour of this *Churches* declination from the *Equinoctial Eaſt*, that the *Ancients* did not think that praying that way, much leſs ſetting their *Churches* or *Altars*, *Eaſtward* (tho' they uſually did both) ſo *eſſential* to their *devotion*, but that upon valuable conſiderations, one, or both might be alter'd: for we find that Pope *Leo* the firſt of that name, to diſtinguiſh the *Chriſtians*, from the *Manichees* who adored the *Sun*, forbid them to worſhip toward the *Eaſt*, reproving all ſuch, *qui priuſquam ad Baſilicam beati* Petri *perveniant*, *ſuperatis gradibus quibus ad ſuggeſtum aræ ſuperioris aſcenditur*, *converſo corpore ad naſcentem Solem ſe convertant*, *& curvatis cervicibus in honorem ſplendidi* Orbis *inclinent*, which he ſpares not to call *ſpiritum paganitatis*, *& damnandam perverſitatem*; that upon the ſtepps before they came to S^t. *Peters* Church turned themſelves about to the *riſing Sun*, and bowed their necks in honour of it, which he ſpares not to call the *Spirit* of *Paganiſme*, and a moſt *damnable perverſneſs*[t].

67. Which prohibition continued till after 1300, above eight hundred years, about which time Cardinal *Stephaneſco* Nephew to *Boniface* 8. (as *Caſalius* notes) hired *Giotto* the famous painter to make that S^t. *Peters* ſhip which was after removed into the Palace by *Urban* 8, of *Moſaic-work*, and to ſet it in ſuch a place, as when they worſhip't toward the *Eaſt* their adoration might be towards it[u]. Since which time the *Church* ſeems to have been more indifferent, both in direct-

[r] *Dr. Fullers Church Hiſtory of Britan*, *Lib.* 4. §. 2. *Cent.* 15. [s] *D. Gulielmi. Dugdale. Monaſtici Angl. Vol.* 3. *pag.* 216. [t] *Sti. Leonis mag. Serm.* 26. *ſeu. in Nativ. Dom. Serm.* 7. *cap.* 4. [u] *Joh. Bapt. Caſalii de Vet. Sacr. Chriſtianor ritib. cap.* 3.

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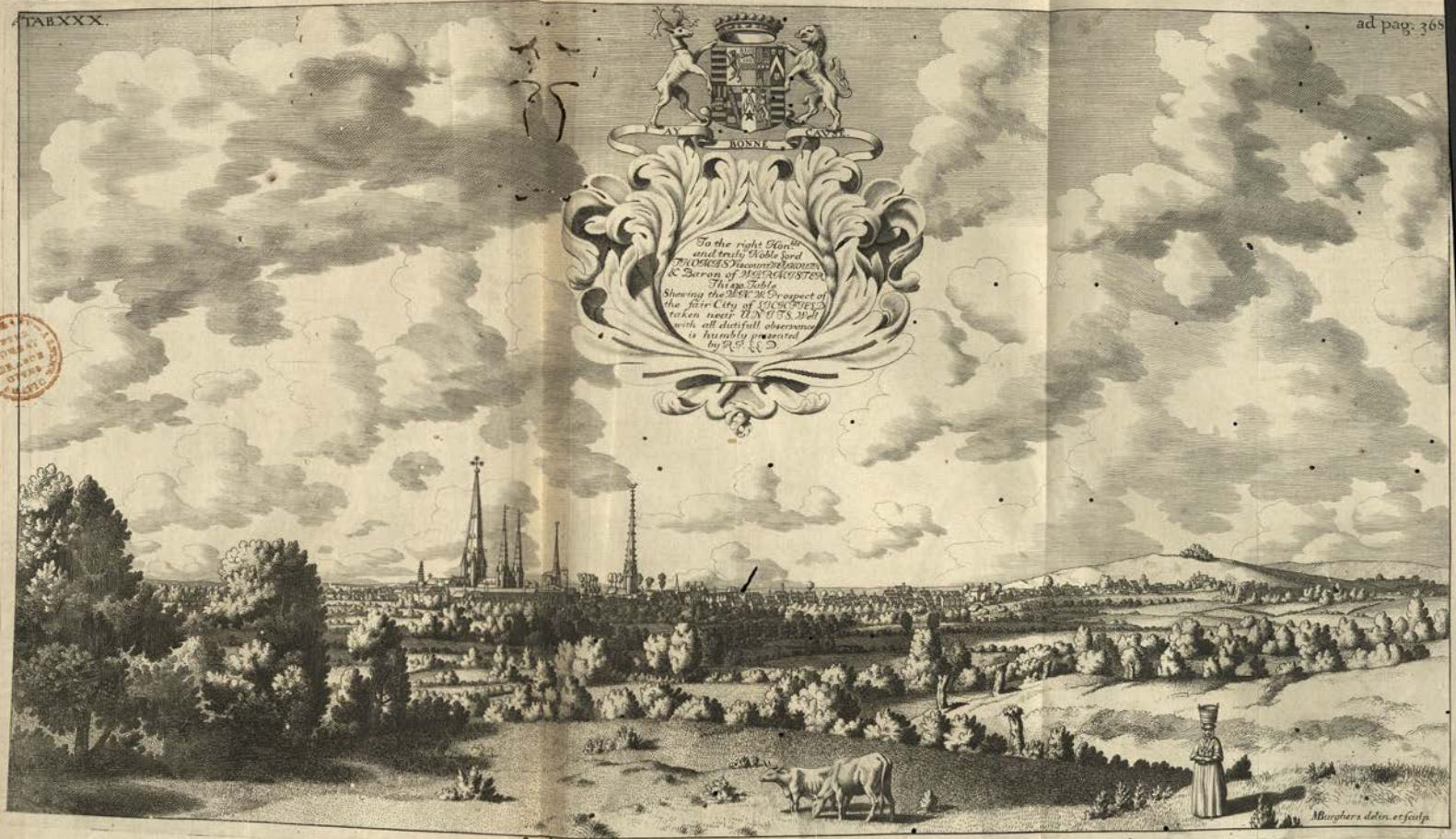
AY BONNE CAVSE
To the right Hon.ble
and truly Noble Lord
THOMAS Viscount WEYMOUTH
& Baron of WARMISTER
This 270 Table
Shewing the W.N.W. Prospect of
the fair City of LICHFIELD
taken near UNITS Well
with all dutifull observance
is humbly presented
by R.P. LL.D.
M.Burghers delin. et sculp.

ing their worſhip toward the *Equinoctial Eaſt*, and in ſetting their *Churches* or *altars* that way, ſome of them being placed ſo as to point toward *Jeruſalem* (in honour of our *Saviour's* having ſuffered there) and upon that account (here in our *Northern* part of the world) not ſet parallel to the *Equator*, but declining from it *Southward*, as (if I miſtake not) the Metropolitical Church of *Cantèrbury* does. Others not placed toward the *Eaſt* at all, as *Paulinus* teſtifies: *Proſpectus vero* Baſilicæ, *non ut uſitatior mos eſt ad* Orientem *ſpectat.* i. e. that the *Church* he there ſpeaks of did not, as uſually, point to the *Eaſt*[w]. Others again being ſet directly *Weſt*, and having their *Altars* placed there, as I am told both St *Clements* and St *Martins*, the two oldeſt Churches in *Rome*, and St *Peters* it ſelf, the ſeat of the *Papacy*, all of them doe. Nor ſeem our Chappells Royal at *Weſtminſter*, at all to reguard the *Equinoctial Eaſt*: ſo that, whatever it might be formerly, the *declination* of a *Church* from that *point*, ſeems no diſhonour now.

68. The body of the Church of *Pateſhull* lately rebuilt at the ſole charge of its munificent *Patron* the right Worſhipfull Sr *Richard Aſtley* K^t and Baron^t, whoſe exemplary *Piety* ſhould have been commemorated above Chap. 8. is a good piece of *Stone-work*; and for other *parts* of Eccleſiaſtical buildings, the tower of the Church of *Dilhorn* (anciently *Dulvern*[x]) is ſomewhat remarkable, it being built *eight-ſquare*; and ſo is the tower of the Collegiat Church of St *Marys* in *Stafford*, which was once adorn'd with a lofty *Spire* thought to be one of the higheſt in *England*, which being blown down at twice (part I ſuppoſe at one time, and part at another) *An.* 1593, beat down the Church likewiſe on every ſide, which yet was repair'd again at great charge *An.* 1594[y]. as appears by the date engraven in a ſtone, on the N. W. ſide of the battlements of the ſteeple, juſt under the ſpout. But the moſt unuſual piece of *Stone-work*, and the moſt extraordinary of any piece of *Eccleſiaſtical* building, that I have any where met with, is the *Stair-caſe* in the S. W. corner of the ſteeple of the Collegiat Church of *Tamworth*; being made of a double *Cochlea* within the ſame *Cylinder*, both winding about the ſame pillar or *Newel*, over one another, ſo that the *floor* of one is the *roof* to the other, having two *entrances*, one within the *Church*, the other in the *Church-yard*, and two *exits* at the top; by which two Men may *aſcend* or *deſcend* together, and never ſee one another all the way; or one may *aſcend*

[w] S^ti. *Paulini Epiſc. Nolan. Epiſtolar. Lib.* 2. *Ep.* 4. [x] *Ex munimentis* Copwoodi Hollins *Gent.* [y] *Ex ipſis Autogr. penes* Majorem & Burgenſ. *de Stafford.*

and another *deſcend* at the ſame time, and never meet.

69. For the better underſtanding of which curious piece of *Architecture*, the courteous Reader may be pleaſed to conſult *Tab.* 32. *Fig.* 4. where the ſaid double *Cochlea* is repreſented in a *diagramm*, diveſted of the exterior *Cylindrical* wall within which it is built, as contrived and given me by the Reverend Mr *Langley* Miniſter of the place: wherein *a a.* ſhew the ſmall pillar or *Newel*, about which both the *Cochleæ* wind; *b*, the *entrance* within the *Church*; *c*, *that* in the *Church-yard*; *d* 1 at the bottom; and 10 *u* at the top, the widneſs of the *cylinder* within the walls, which is 6 foot; ſo that the widneſs of each *Cochlea* from the *newel* to the out *walls*, is 3 foot or a yard. Now if a Perſon enter within the Church at *b*, he aſcends firſt (winding about the pillar or *newel*, *a a*) to *d*; thence (which muſt be conceived on the backſide this plane where the prick't lines are) to *e*; thence to *f*; thence to *g*; thence to *h*; thence to *i*; thence to *k*; thence to *l*; thence to *m*; and thence out at *n*, at the top. Another perſon entring at *c*, winding about in like manner the ſame *Newel*, firſt to the figure 1; thence to 2; thence to 3; thence to 4, &c. coming out at 10 at the top; the *Cochleæ* being *floores* and *roofes* to each other interchangeably all the way up: the *floor* 1. 2 being the *roof* to *b d*; and the *floor e f* to the *roof* 1. 2; and ſo 3. 4 to *e f*; and *g h* to 3. 4; & *ſic viciſſim* to the top. The uſe whereof I gueſs might be, that the *Decani*, *Copiatæ*, or Νεκροθάπται, that took the care of ringing the *bells* and *burying* the *dead*, the οἱ τὰ σώματα διεγείροντες τῶν κοιμωμένων, as *Epiphanius* calles them[z], in *Engliſh* the *Sextons*; and the *Diaconi* or *Sacriſtæ*, the *Deacons* or *Sacriſts*, that made the *reſponſes*, and took care of the *Veſtments* and *Utenſills* of the Church; might doe their duties apart; each having by this means the power of the *ſteeple*, without diſturbing the other. Or elſe that the *Clock-keeper* might execute his *office*, without troubling either of them. Which *conveniencies* 'tis poſſible might be the occaſion of building this *ſtair-caſe* thus.

70. Nor could I perceive any *inconveniency* it it, but that the *ſtaires* were ſomewhat *deeper*, and the *aſcent* ſomewhat more *ſteep*, than ordinary, as indeed the nature of the thing requires: for it being neceſſary that the *floors* and *roofs* ſhould be diſtant at leſt a mans height, one muſt needs aſcend in a ſingle revolution of the *Cochlea* or *ſpiral*, as much as between *d* and *f*, i. e. twice the height of a man; whereas had there been but a ſingle pair of *ſtairs*, the *aſcent* need not have been but from *d* to 2, a

[z] *Sti. Epiphanii contra Hæreſ. Lib.* 3.

ſingle.

ſingle mans height, and ſo in each revolution. Whence 'tis eaſy to conclude that tho' there may be made as many of theſe *helical ſtairs*, winding round the ſame *Newel*, as the *Architect* pleaſes; yet more than theſe, by reaſon of the neceſſary *ſleepneſs* that muſt follow, would ſcarce be tolerable. Nay I have not yet heard of another *Example* of ſuch a double *Cochlea*, built within the ſame *Cylinder*, any where in *England*; perhaps beyond Seas, there may be others of the kind, there being a *Model* of much ſuch a *ſtair-caſe* as this, in the *Repoſitory* of the *Royal Society* of *London*, the *entrances* whereof are oppoſite to each other, and the *Cochleæ* making a paralel aſcent within the ſame *Cylinder*, agreeing with ours in all things but the *Newel*, which in this is hollow and built with long *apertures*, to convey light from *candles* placed at the bottom, and in the ſides of the *Newel*, into both *Caſes*[a]: whereas ours at *Tamworth*, is enlightened from without, by *apertures* made in the *Cylindrical caſe*. Yet I am told this *Model* was ſent hither from *Hamborough* as a new *Invention*, and ſo not unlikely it might be to them, this not being the firſt time, that the ſame thing has been reinvented: I am ſure it cannot be very new with us, for tho' I find not certainly how old this Church is, yet it being made Collegiat by one of the *Marmions* Lords of the Caſtle here[b], the laſt whereof dyed *temp. Edw.* 1[c]. it muſt be ſo old at leſt.

71. Which I think is all I met with worthy of remarke relating to *Churches*, but that the *Church-yard* of S[t] *Michaels* in the City of *Lichfield*, is the largeſt of the kind that ever I ſaw, it containing within its limits as near as I could gueſs at leſt 6 or 7 Acres of good paſture ground. And that in the Church of *Wolverhampton* are ſeven *bells* rung together in *peal*, which how immuſical it muſt needs be, the *Reader* may eaſily judg: for whether he conſiders them as the firſt *ſeven*, or the laſt of *Eight*; the ſound they make can never be gratefull: for if the former, they muſt needs end in a *flat third*; or if the latter (which if I miſtake not they ſeem to be) they muſt then begin with *four* whole *notes* together; either of which is very inharmonious: beſide that their *number* excludes them from ever being brought, either into *common* or *treble-time*, which alſo muſt needs be unagreeable. And as for *civil publick buildings*, the moſt beautifull that I know of any where in the County, is the *Town-hall* of *Stafford* built all of Squared Stone, the whole being ſupported

[a] *Muſei Regalis Societat. part.* 4. §. 2. [b] *John Speed's Hiſt. of great Britan. Book* 9. *chap.* 21. [c] *See Sr William Dugdales Antiquities of Warwickſh. illuſtrated, in Tamworth Caſtle.*

with a curious *Portico* of archwork, which gives not only ſhelter from the *Rain* and *Sun* at the *Aſſizes*, *Seſſions*, and *Market days*; but to the *Towns* people at all times: the front whereof is here deſervedly offered to the *Readers* view *Tab.* 31.

72. But the moſt notorious piece of work of a *civil publick building*, in this *County*, or any where (of the kind) perhaps in *England*, is the great bridg at *Burton* upon *Trent*, built in the time of *Bernard* Abbot of *Burton* (as Mr *Erdeſwick* proves at large[d], who dyed in *An.* 1175. the 21. of *Hen.* 2.[e]) all of ſquared free-ſtone, ſtrong and lofty, and containing in length as I found it by meaſure, near about 515 yards as the *Cart* goes, i. e. a quarter of a mile and better than $\frac{1}{3}$ of a furlong more, the River *Trent*, over which it ſtands, dividing it ſelf there into three *Channels*, as may be ſeen in the *Map*, and paſſing under it through 34 *arches* whereof 33 had water running under them when I were there: that betwixt *Shutborow* and *great-Heywood* not being near ſo long though it have more *arches*, theſe (it being but a *horſe-bridg*) being but ſmall in compariſon. Which tho' 'tis likely may be longer than any bridg in *England*, yet is very inconſiderable if put in competition with the *bridg* of *ſtone* built by the Emperour *Adrian* over the *Danube* deſcribed by *Dion*, which was near 7 furlongs or $\frac{7}{8}$ of a mile in length: and yet more inconſiderable ſtill if compared with that of *wood* at *Murſa* or *Eſſec*, built partly over the *Drave*, and partly over the *Fenns*, which as Dr *Brown* tells us, is at leaſt five miles long[f].

73. Nor is this all yet belonging to *ſtones*: for the *Ores* of *Metalls* being generally ſuch, the *Arts* relating to them, at leſt after they are *refined*, alſo belong to this place, thoſe only of *ſmelting* and *refining* them, having been treated of already in the *Chapter* of *Stones*: and theſe will cheifly reguard the making up of ſome of the *Metalls* into *wares*, in order to their *retail*. Amongſt which I ſhall firſt conſider the *Arts*, either unuſual or curious, that ſome way reſpect the working of *Iron*; which for ſome of their fineſt work, they commonly *harden* in order to their receiving a better *poliſh*, according as the ſubject matter in hand requires: and this they performed anciently with the *hooves*, and *horns* of *Cattle*, *Sand*, and *Salt*, whereof *Sea-Salt*, (or *Bay-Salt*) has been always preferr'd, which they formerly uſed to put into a *Coffin* made of *Clay*, fitted to the *Iron* intended to be *hardened*, and ſo committed to the fire. But

[d] *Mr. Sampſ. Erdeſwick's view of Staffordſh. in Burton.* [e] *D. Gulielmi Dugdali Monaſtici Angl. vol.* 1. *in Abbatia de Burton.* [f] *Dr. Brown's Travells thro' Hungary, &c. p.* 54

of

ad pag: 372.

To the Worp.ll
SAMUEL SANDERS of
CALDWALL in DERBYSHIRE Esq.
but Native of STAFFORDSHIRE.
This 31 Table.
Shewing the Front of the
TOWNE HALL of STAFFORD
with all imaginable respect
is humbly dedicated
by R. P. L. L. D.

MBurghers delin. et sculp.

of late they have uſed divers other *materials* for this purpoſe, and after a different manner; it being done at *Wolverhampton*, with burnt *hoofs*, and *hornes*, *fountain* and *bay-ſalt*, *ſublimat*, *Urin*, old burnt *leather*, and *Tartar*, all mix't together, and reduced into pouder, in which rolling their *Iron* firſt made red hot, it will ſtick to it, and is thus returned into the fire again to receive its *hardening*, which it does not quite through the whole body of the *Iron*, but only on the outſide for about the thickneſs of a ſhilling at moſt, which is highly ſufficient to receive a poliſh.

74. But out of theſe, and ſome few other *materials*, they have obſerved that two ſorts of *hardening* ariſe, viz. *tough-hardening*, and *brittle-hardening*; the former whereof they perform with *old-ſhoos burnt*, *Urin*, and *Wood-ſoot*, with which when any Iron is hardened it will not *ſcale* in the heft; and the latter, with *old ſhoos*, *tupps horns*, *bay-ſalt*, and *Argal* or *Tartar*; which harden Iron to the height, and give the brighteſt *poliſh*, tho' they render it *brittle*: but I was told by others that the *toughest-hardening* was made, by the juice of *nettles*, Mans *urin*, and *Linſeed-oyle*; and the *higheſt*, by quenching red hot Iron in the juice of *Mouſeare*; which proceſſes are underſtood by moſt *Smiths* in the *County*: and ſo they were moſt of them anciently, as may plainly be ſeen in *Baptiſta Porta*, *de re ferraria* [s]. Yet the matter of *fact* in theſe *operations* being not known to ſo many, but the *reaſon* of it is unknown to more: it remains that I render ſome *Philoſophical* account of it, which I conjecture may be *this*: viz. that all theſe being *Alkali's*, doe kill and deſtroy the *acid-Vitriolic ſalt* of the *Iron* that kept its pores open, and ſo condenſing its parts, makes it more compact. If it be objected that *fountain* and *bay-ſalt*, *ſublimate*, &c. are themſelves *acids*, and therefore unlikely to deſtroy the *Vitriol* of *Mars* in the pores of the *Iron*: it muſt be aſwered, that tho' the aforementioned *Salts* are indeed *acids*, and are always ſo reckon'd, if conſidered ſimply; yet if compared with *Vitriol* may be eſteemed *alkali's*, the points of theſe being much groſſer then thoſe of *Vitriol*, and ſo conſequently will break and deſtroy them, as we ſee they doe in divers *Chymical preparations*, ſuch as the *white precipitate*, and the *precipitation* of *Lead* diſſolved in *Vinegar*, &c. wherein the *common-ſalt* acting the part of an *alkali*, deſtroys the *Chryſtalls* of *Niter* and *Vinegar*, which before had diſſolved the *Mercury* and *Saturn*, in order to theſe *preparations*.

75. Beſide the aforeſaid *hardenings*, which are only *ſuperfi-*

[s] *Joh. Bapt. Portæ Magiæ. Nat. Lib.* 13. *cap.* 4, 5, 6.

cial; at the Tile-houſe at *Bromley* in the pariſh of *Kings-Swinford*, one *John Heydon* hardens whole barrs of *Iron* quite thro', i. e. makes them into *Steel*, which he does not out of *Engliſh*, but *Spaniſh* or *Swediſh* barrs, here called *bullet-Iron*; the manner thus. He has a round *Oven* built of brick, not unlike thoſe uſed by *Bakers* at the top, having a grate in the bottom near the middle, about a foot and ½ or 2 foot wide, where he lays the *coal* on each ſide whereof, and at the end beyond it, he lays his *Iron* incloſed in *Coffins* made of *Amblecot-clay* to keep it from *melting*; the *Coffins* being proportioned to the *barrs* of *Iron*, which are broken into *lengths*, of between 3 and 4, or 4 and 5 foot long; the longeſt being placed at the end of the *Oven*, and the ſhorteſt on each ſide; each *Coffin* containing about half a *Tun* of *Iron*. When the fire is put to it, it is conſtantly tended day and night till the operation is performed, which according to the goodneſs or badneſs of the *coal* is done in a longer or ſhorter time, ſometimes in 3 days and 3 nights, other times in 4, and ſometimes not under a weeks time, the *critical-minute* in which the operation is finiſht being the great ſecret of the *Art* of making *Iron* into *ſteel*. Which when done, they cut it into narrower barrs about half an inch over, & then break it into ſhort pieces of an inch, or two inches long, call'd *Gadds*, whereby the buyers may ſee whether it be good or bad (for there may be both in the ſame *barr*) otherwiſe they care not to buy it.

76. And this is the *Method* they proceed in here to make *ſteel*, which ſeems ſomewhat agreeable to the practiſe in *Ariſtotles* time, it being then performed by *frequent* ignition[h], as it is now by a *long* one; whereby the *Vitriolic-Salt* of the *Iron* being thus ſtrongly preſs't by the Violence of the fire for ſo long a time, is forced out of the *pores* of it, wherein it was lodg'd; and riſes in *vapours* as in the diſtillation of the acid ſpirit of *Vitriol*, and flyes quite away, leaving the *Iron* wholy void of all *Salt* to the *center*, and diminiſhing its *bulk*, in proportion to the *parts* that are thus carryed off. Whereas in the former *operations*, the *Vitriol* of *Mars* was only ſuperficially deſtroyed, either by the ſuperinduction of an *oppoſit-Salt*, or *dipping* it *red hot* (whilſt the parts are open) in ſome peculiar *juices*, which alſo ſuperficially *diſſolve* the *Salts*, and ſo take them away, as *common-water* it ſelf will likewiſe doe, tho' perhaps not ſo well as ſome of the *juices* there mention'd; thoſe being certainly the beſt, that are higheſt impregnated with ſome *alcalizate Salt*: as I have reaſon to ſuſpect the waters of *Bilbao* and *Taracona* in *Spain*, *Sulmo* and *Como* in

[h] *Ariſtot. Meteorolog. Lib.* 4. *cap.* 6.

Italy

Italy are; which places tho' they yeild no *Iron-Ores* of their own, yet have always been esteemed (upon account of their *waters*) famous for this *Metall*[i]. Which additions of so many various *materials* beside *heating* the *Iron* for superficial hardening, makes me suspect that there must be some other *applications* for the central hardening or making of *steel*, beside what *John Heydon* was willing to impart, it being evident that *heating* of *Iron* only, and letting it coole in the fire, does rather soften then harden it, as we plainly see in the anealing of *Wyer*, and other *Irons*; which often heated, and suffered to coole in the fire as it goes out of it self (provided it be not hammer'd) will thereby be much softened*.

77. For which *knack* of *softening*, they have also frequent occasion, in order to their *Iron works*, as well as for *hardening*; which they doe too with *oyl*, *wax*, *suet*, *butter*, *Asa-fœtida*, *sulphur*, and indeed with any *fat unctuous* body; it seeming to amount almost to an *Aphorisme*, *in re ferraria*, *durum pinguibus remollescere*: the *Iron* being daubed over with any of these, and then heated red hot, and suffer'd after to coole in the fire by degrees, as it goes out of it self. Thus I find in the *Journal* of the *Philosophical Society* of the University of *Oxford*, that an ingenious *Smith* of that *City* usually softens his *Iron*, first heating it moderatly, then daubing it all over with *tallow*, and after heating it red hot, and letting it coole in the *fire* as it gradually goes out[k]. The *Iron* thus prepared, is used both by the *White* and *Black-Smiths* of this *County*, according as the condition of their *wares* require; it being forged by the former, into *Sithes*, *Reaping-hooks*, *Axes*, *Hatchets*, *Bills*, &c. (for each whereof they give their *Iron* a different *heat* and *temper*) which being ground at the *blade-mills* to a *bright* edg (whereof there is one at *Himley*, another near *Swindon*, and others on all the *little-waters* thereabout) they have given this sort of *Artisans* that make them, the name of *White-Smiths*. And by the latter, it is wrought into *plow*, *cart*, and *fire irons*, into *horse-locks* and *shoes*, *bolts*, and *hinges* for doors, *barrs* for *windows*, *squares* for *trunks* and *coffins*, *staff-heads*, *buckles*, and *nailes*; for making the last of which there are so prodigious numbers here, that in the parish of *Sedgley* alone, there are thought to be no less than 2000 of the *trade*, reckoning *boys* as well as *men*.

78. But the greatest excellency of the *Black-Smiths* profession, that I could hear of in this *County*, lyes in their making *locks* for

[i] *C. Plinii* 2^di^. *Nat. Hist. Lib.* 34. *cap.* 14. * *Joh. Bapt. Portæ. Magiæ. Nat. Lib.* 13. *cap.* 2. [k] *Journal Book of the* Philosophical Society *of* Oxon. *Sess. of Octob.* 26. 1683.

doores,

doores, wherein the *Artisans* of *Wolverhampton* seem to be preferr'd to all others, where they make them in *Sutes*, six eight, or more in a *sute*, according as the *Chapman* bespeaks them; whereof the *Keys* shall neither of them open each others lock, yet one *Master-key* shall open them all: so that these *locks* being set upon the doores of a house, and the *inferior Keys* kept by distinct *servants*, tho' neither of them can come at each others *charge*, yet the *Master* can come at them all. Beside the *Master* turning his key in any of the *Servants* locks but once extraordinary, the *Servants* themselves cannot come at their *charge*, neither shall the *Servant* spoil his key or the lock in endeavouring it; for his, after the *Master-key* has given the lock a second turn, will only run round in it backward and forward, without either stopping at, or prejudiceing it any thing. Nay so curious are they in *Lockwork* (indeed beyond all preference) that they can contrive a *Lock*, so that the *Master* or *Mistris* of a family sending a *Servant* into their *Closets*, either with the *Master Key*, or (if they permit an *inferiour-Key*) with their own, can certainly tell by the *Lock* how many times that *Servant* has been in, at any distance of time; or how many times the *Lock* has been shot for a whole year together: some of them being made to shew it 300, 500, or 1000 times; nay one of the cheif *Workman* of the *Town* told me (might he have *Workmans* wages) he could make one should shew it to 10000 times. Farther yet, I was told of a very fine *Lock* made in this *Town*, sold for 20 pounds, that had a set of *Chimes* in it, that would goe at any hour the *Owner* should think fit. And these *Locks* they make either with *brass* or *iron* boxes so curiously polish't, and the *keys* so finely wrought, that 'tis not reasonable to think they were ever exceeded, unless by *Tubal-Cain* the inspired *Artificer* in Brass and Iron[1].

79. Nor are they less curious in their *Iron works* as the Town of *Walsall*, which cheifly relate to somewhat of *Horsemanship*, such as *Spurrs*, *Bridles*, *Sturrups*, &c. in the two *former* whereof they are so very nice, that neither of them are perfected without the joynt concurence of several *Artisans*: as in the making of a *Spurr*, there is first the *Head* or *Spurr-maker* that makes the *body* of the *Spurr*, which he makes either *plain*, *joynted*, *broad*, *narrow*, *wyer*, &c. and these with *swan-necks*, *feather-necks*, *rough-necks*; or *long*, *short*, or *middle-necks*; and all these again either *white*, *sanguine*, or *inlaid* with some *Metall*. Secondly the *Hook* or *Button-maker*. Thirdly the *Spurr-Buckle maker*, who makes the *buckle*, the *chape*, *tongue*, and *roll*. And lastly the

[1] *Gen.* 4. *v.* 22.

Rowell

Rowell maker, who makes the 5, 6, 7, 8, or 10 pointed *rowells*, of iron or ſteel, which he cuts in a *mould* at one ſtroke, making a great many of them in a little time, and then *files* them. They make alſo great variety of *bridles*, both *Snaffles* and *Bitts*: ſuch as the *wheel* and *joynted Snaffle*, the *neck-Snaffle*, *wreath-Snaffle*, *prick-Snaffle*, &c. to the *ends* or *ſides* whereof belong theſe faſhions, viz. the *Rippon*, *acorn*, *ſpoon*, *trumpet*, *bobbing*, and *knob'd end*. They make likewiſe *Colt-ſnaffles* and *trenches*, *Cabbinſons* and *Muſrolls*; which are all commonly made too by different *perſons*, tho' ſometimes the ſame makes them all himſelf. And of *Bitts*, they make the *Canon* or *port bitt*, the *Million Mouth'd bitt*, the *ſnaffle mouth'd bitt*, the *half check't bit*, the *Coach bit*, and *watering bit*, which are made by one *workman*; and the *Harneſs* to them, viz. the *curbb*, *watering-chain*, *bolts*, and *rings*, by *another*.

80. Of *Stirrups* they alſo make theſe ſeveral ſorts, the *ſwivel*, *barr'd*, *Rippon*, and *plain ſtirrop*, and theſe either with *broad* or *narrow bottoms*. They make alſo all the *Iron work* belonging to a *Saddle*, viz. *ſivels*, *barrs*, *plates*, the two former being made by one *workman*, the latter by *another*: alſo the great variety of *buckles* that belong to the *pack* and *hackney-Saddles*, ſuch as *ſetts*, *black* or *oyl'd buckles*, *ſanguine buckles*, *crupper buckles*, *breſt-plate buckles*, and *ſuſſingle buckles*: and all ſorts of *ſhooe*, and *garter buckles*, whether *round*, *ſquare*, *oval*, or *cut buckles*, which too are all or moſt of them made by different *Tradeſmen*. There are divers other *buckles* alſo made promiſcuouſly amongſt theſe, ſuch as the *Heſter buckle*, *plain* and *knobb'd*, for the *white bridle*; and the *open* and *plain crown buckles*, for the *black*; and ſo the *Poland buckle*, the *peaſe buckle*, *chaſed buckles*, *Dutch* and *Iriſh buckles*, which are *braſs*, and made by the *Copperſmith*. Who alſo makes *boſſes* of all ſorts, *pendants*, *ſtarrs*, and *Labells*, *coach nailes*, *ſtudds*, &c. Alſo they caſt in this Town, *Iron*, *Copper*, and *braſs potts* of all ſizes; in perfecting of which *wares*, as alſo of their *ſpurs*, *bridles*, *ſtirrups*, &c. they uſe a great deal of *Tin* which they ſuperinduce over them, to give a better *luſter*, and preſerve ſome of them from *ruſting*; and prevent others from giving a *taſt* of the *Metalls* to things boyled in them.

81. For the performance whereof they uſe ſuch *Methods* and *materials*, as each *Metall* requires; viz. for *Iron* they proceed in this manner: they melt in a *pan* a parcel of *Tin* proportionable to their *work*, and a ratable quantity of *yellow Roſin* mix't, which will ſwim above the *Tin* to the thickneſs of a *Crown* piece; into which, the *wares* being firſt ſoaked in old ſharp

clarifyed *Whey* to cleanſe them from all filth, and duely *heated*, and then dipt into this *mixture* and ſhaken about, by mediation of the *Roſin* they become *Tin'd* all over. And for *tinning* other ſmaller *braſs* commodities, they obſerve this *method*; they put them all together in an *earthen pot*, and heat them over the fire to a due proportion, then they put in a ſuitable quantity of *Tin*, to which when melted, they caſt in as much as will ſuffice for the purpoſe of *Sal Ammoniac* or *Armeniac* (by the mediation whereof the *braſs* admitts the *Tin*) which when ſhaken together the work is finiſh't, only they caſt them immediatly into a pan of *cold water* to waſh off the *fæces* of the *Sal Ammoniac*, and to *cool* them quickly to preſerve their colour, which they will not keep, if long in *cooling*. But in *tinning* greater *braſs Veſſels* ſuch as *potts*, *kettles*, &c. firſt they give the *veſſel* its due heat, then they ſprinkle the *Sal Ammoniac* in duſt all over it, and then they apply a rod of *Tin* cold to it (the *veſſel* being *hot* enough to melt it down) which when done in a proportionable quantity to the *veſſel*, they then bruſh it all over it with *hurds* or combings of hemp (which licks not up the *Tin* as any thing elſe will) and the work is finiſh't.

82. In *tinning* of *Copper* whether ſmall or great *veſſels*, they uſe the *Methods* as above, only inſtead of *Sal Ammoniac* they apply *black-Roſin* (which I am told is nothing elſe but the *yellow* refin'd) to unite the *Metalls*, with which they rub the *veſſel* all over firſt, and then apply the *tin*, and ſo proceed *ut ſupra*. The matter of *fact* of which *operations*, viz. that the matters are ſo, all the *Workmen* know; but why theſe *materials* rather than any other, ſhould performe theſe feats? is a *Queſtion* perhaps that has ſcarce yet been propoſed, much leſs determin'd: nor ſhall I pretend it. But if the *Reader* pleaſe to accept of a *conjecture*, till ſuch time as he can meet with a more ſatisfactory account; let him take notice firſt, that *Iron*, *Copper*, and *Braſs*, all hold *Vitriols* of their reſpective kinds, and that *Tin* is a very open porous body and of a rough *ſuperficies*: now as for *Sal Ammoniac* every body knows it to be an *Alkali*, and to ſeize upon *acids* where ever it finds them, and ſo likewiſe upon *Tin*, as is plain by the ſublimation of *Jupiter* by it[m]; whence it ſeems very probable that the *Sal Ammoniac* unites the *tin* and *braſs*, by ſeizing and deſtroying the *Vitriol* of *Venus*, and ſo inſerting one end of its *Chryſtalls* into the pores of the *Braſs* where the *Vitriol* was, and the other into the open void pores of the *Tin*. In like manner as the glutinous *Roſins* doe, which are nothing elſe but the ſediments of Clarify'd *Turpentine* that alſo carry an *Alcalizat Salt*

[m] *Nich. Lemery's courſe of Chymiſtry. part.* 1. *Chap.* 3.

with

with them, whoſe points deſtroying the *Vitriols* both of *Mars* and *Venus* in the *Iron* and *Copper*, eaſily lodg themſelves in the place, and ſo in the patent pores of the *Tin*, and thus with aſſiſtance of the concomitant *Viſcoſity*, unites them ſo ſtrictly as we ſee they uſually are.

§3. And theſe are all the *Arts* that I found remarkable here, attending the *Earths* and *Metalls*: only that for preſerving ſome of their finiſh't *Iron-works* from ruſt, ſuch as *Sword-hilts*, *Shoo-buckles*, *Armour*, &c. they uſe *Litharge* pounded and ſearced fine, mixt with *oyle* of *Spike*, and ſo layd on with a *feather*: or if they have occaſion to lay by any of theſe *curious wares* for a conſiderable time, ſuch as their curious thorough work't *Keys*, *buckles*, &c. they commonly bury them in *Lime* powder'd, which being a ſtrong *Alcali*, repells the relenting of the *Vitriol* of *Mars*, which ſeems to be the only thing that occaſions this *Metall* to contract ruſt. Next theſe, I proceed to treat of ſuch *Arts* as belong to *plants*, or the dependants on them, whereof the firſt that preſent themſelves are thoſe that concern the *herbaceous* kind. Of which ſort we may reckon two ingenious *contrivances* and profitable ones alſo, that I met with in this *County* relating to *hemp* and *ruſhes*, whereof they make *ropes*; which I found about *Tamworth* (eſpecially thoſe they had for their *Wells*) were not made of *Hemp* alone, but mixt with *hair*: the advantage whereof above thoſe of *hemp* only, they told me was this, that the ends of the *hair* ſticking roughly out beyond the *hempen* ſtrands, did ſo caſt off the *water*, that theſe *ropes* were preſerved from rotting, and laſted much longer, than any others did; which ſeems probable enough. And at *Parke-hall* in the pariſh of *Caverſwall* I was ſhewn a *rope*, that paſt between the *runners* of the *Oat-mill* above mention'd §. 10. made only of the *pillings* or rinds pull'd off the *pith* of the *juncus lævis paniculâ ſparſa major*, or *juncus lævis vulgaris* *, both which it ſeems are *Candle-ruſhes*, which they told me would not only laſt a year, i. e. longer than one of *hemp*, but that it would not *ſtretch* as hempen ones doe, which it ſeems is a great convenience in the working of ſuch a *Mill*. Which are all the *Arts* that any way concern *herbs*, but that about *Shenſton*, as I was inform'd by the worthy Mr *Frith* of *Thorns*, they frequently uſed the *Erica vulgaris*, *heath* or *ling* inſtead of *hopps* to preſerve their *beer*, which as he alſo told me gave it no ill *taſt*. And that they ſometimes here make mault of *Oats*, which mixt with that of *barley*, is call'd *Dredg-mault*, of which they make an excellent freſh quick ſort of *Drink*.

* *Vid. Joh. Raii Catalog. Plantar. Angliæ & Joh. Parkinſ. Theat. Botan. Trib.* 13. *cap.* 30.

84. Having done with the *herbs*, the *Arts* relating to the *Shrubs* and *Subfrutices* naturally follow, whereof I was told of one, by the right Worſhipfull Sr *Walter Bagot* of *Blithfield* Baronet, of very good uſe, viz. that *Acorns* are beſt ſown for the propagation of *timber* with the *geniſta ſpinoſa*, i. e. *gorſs* or *furs*, amongſt which they will grow ſecurely out of all danger, wanting no other *fence*, and when they come to top them, will quickly ſhade, and ſo kill them. At the Worſhipfull *Thomas Kinnerſley*'s of *Uttoxater* Eſq; I ſaw an attempt for a *hedg* of the ſame plant, how it has ſucceeded ſince, I have not been informed; but it being ſo hardy a plant, I ſuppoſe there need be no great doubt made, either of its growing, or admitting of *formation* by the *Gardiners* ſheers. Hither alſo muſt be referr'd what concerns the *Vine*, which has been improved by the right Worſhipfull Sr *Henry Lyttleton* to that advantage at *Over-Arley*, which is ſituate low and warm, being ſurrounded with hills, that he has made *wine* ſo good there, that it has been altogether undiſtinguiſhable from the beſt *French wines* by the moſt judicious palates: but this I ſuppoſe was done only in ſome favourable over hot *Summer*, tho' if the *Vines* were placed very advantageouſly 'tis poſſible it might be done in an indifferent year, the Reverend and Learned Dr *Ralph Bathurſt*, Preſident of *Trinity College* and Dean of *Wells*, having made as good *Claret* here at *Oxon. An.* 1685, which was a very mean year for that purpoſe, as one would wiſh to drink. Which is ſo farr from wonder that we are informed they planted *vinyards*, and made *wines* anciently all over the *Kingdom*; for tho' *Tacitus* ſays it bore all ſorts of fruits, *præter oleam & Vitem*[n], yet we find in *Vopiſcus* that the Emperor *Probus* for ſome good ſervice done, permitted the *Britans* to plant them *vinyards*, which had been no great favour, could they not have made *wines*[o].

85. As to the *Arts* uſed here in the ordering of *trees*, they may be diſtinguiſht firſt either into ſuch as concern *Timber*, or *Fruit trees*; and the former again either into ſuch as are applyed to them during their *vegetation*, or when *fell'd*, and diſpoſed of for uſes, as *timber*; Under the firſt of which conditions, the *Planter* and *Gardiner* make them into pleaſant *walks* and *Topiary* works; for the latter whereof *Laurembergius* notes that the *Engliſh* are as expert as moſt *Nations*, quoting *Hampton-Court* as remarkable for them[p]: and ſo is *Brewood-Hall* the Seat of Mr *Ferrers Fowk* of this *County*, where in the *whitethorn*

[n] *Corn. Taciti. de vita Julii Agricolæ Cap.* 12. [o] *Flav. Vopiſcus Syracus. in vita Probi.* [p] *Petri Laurembergii Horticulturæ Lib.* 1. *cap.* 29. & 37.

hedg

hedg between the *Garden* and *Court* before the houſe, there are ſeveral *Animals*, *Caſtles*, &c. formed *arte Topiaria*, not unlike thoſe ingraven by *Laurembergius*[q]. The *Wrens-neſt* in the *Hort-yard* is a neat piece of work, cut in that *form* likewiſe out of a *whitethorn*, and capacious enough to receive a man to ſit on a ſeat made within it for that purpoſe. And in the *Garden* there is a *Yew tree* that from divers branches iſſuing out of it about a yard from the ground, *formes* a fair ſpacious *Arbour* of a ſquare figure, each ſide without meaſuring about 5 yards, but within not exceeding above ten foot; cut on the top with *loop* and *creſt*, like the battlements of a *Tower*, adorn'd at each corner with a *pinnacle*, over which is wrought a *Canopy* out of the middle branches about 2 yards *diameter*, which is carryed up again firſt to a leſſer gradation, and then terminates at the top in a ſmall *pinnacle*. There is alſo near the *pale* incloſing the *Hortyard* a fine *Yew-tree* cut up gradually from greater to leſſer rounds to the number of twenty; in which ſort of *Ornament* the people of this *County* ſeem to take great delight, there being others of them at *Mear*, *Aſpley*, *Moreton*, and *Willbrighton*, of 21, 22, 23 ſtories high.

86. In the *Garden* of the worthy Mr *Scot* of great *Barr*, there is a *Yew-tree* cut conically like the *Spire* of a Steeple, 8 or 9 yards high. And for plantations of *Trees* and *Walks* there are very fair ones at the right Honorable the Lord Viſc. *Maſſereens* at *Fiſherwick*; and at the right Worſhipfull Sr *Francis Lawleys* at *Cannal*; there are alſo fine young ones of the *Silver Firr* at Mr *Chetwynds* at *Ingeſtre*; but of all I met with in the *County* there are none that are comparable either for *bredth* or *length* to thoſe above mention'd at Sr *Richard Aſtley's* at *Pateſhull*[r], ſome of them being 11 and 14 yards broad, and 148 or 150 yards long, curiouſly planted on each ſide with double rows of *Elmes*. In many of their *parks* and *woods* in this *County*, they much affect cutting *viſta's* or pleaſant *Lawns* here and there through them, whereof the moſt eminent are thoſe in *Littewood*, which may be ſeen about the *Country* at a great diſtance, and afford pleaſure to the travellor a farr off, as well as near; and there are very fine ones deſigned, Eaſt of *Pateſhull* houſe. The manage of the *Woods* in this *County* alſo belongs to this place, which if *Underwood*, in the *Moorelands* they order thus; the *bruſh* they uſe for *brewing*, and heating the *Oven* where they have it; and where there are *Rivers* (if needfull) they preſerve the *banks* with it: but if of bigger growth,

[q] *Locis ſupra citatis* [r] *See* §. 52. *of this Chap.*

they generally *charr* it for the *Iron Mills*, in the manner as described by the learned Mr *Evelyn*[s].

87. And ſo they doe the *loppings* of their timber trees, which they extend even to *Oakes*, not ſparing to lop them when young, at ſome diſtance from the tree, which in proceſs of time will be cover'd again with the *bark*, in which they think they give advantage to the *Underwood* in its growth (as doubtleſs they doe) and hurt not the *timber* at all: tho' they are of opinion, if they ſhould, that the *Underwood* will pay them better for its growth, than their Timber ever would: which yet they let grow to as vaſt a bigneſs here, as was ſhewn above, as in any part of *England*[t]. In the *felling* whereof they have this very good cuſtom, that they flaw it ſtanding about the beginning or middle of *May*, which I firſt obſerved in ſome *fences* near *Norton* in the *moores*, *Milton*, *Badiley*, &c. where there were ſeveral *Oakes* ſtood naked, diveſted of their *bark*, which they told me would not be fell'd till *Michaelmaſs* following at ſooneſt, or perhaps not till mid *Winter*, or the enſueing *Spring*. which I take to be a way of ſo valuable a conſideration, that perhaps it may deſerve the debate of a *Parliament*, whether it might not be worth while to inforce this *cuſtome* to be ſtrictly obſerved all over the *Nation?* for tho' by a reſerve in the *Act* for due felling *Oaken* timber, it may be done at any time for building or repairing *Houſes*, *Ships*, and *Mills*; yet for any other *uſes* none may fell it (in conſideration of the *tan*) where *bark* is worth but two ſhillings *per* load, over and above the charges of *barking* and *pilling*, but between the firſt of *April* and laſt of *June*[u], when the ſap is up, and the bark will run; which cauſes the out ſide of the *timber* to rott away quickly, and to grow worm-eaten: whereas theſe being felld in or near the *winter*, and having ſtood naked all the *Summer* drying in the *Sun*, become in a manner as hard and ſound without as within, being as it were all *heart*, and not ſo ſubject to *worms*: by which means there would be a great deal of good timber ſaved, and no other could be uſed; nor would the uſe of the *bark* be loſt to the *Tanner*, as I ſuppoſe is preſumed in the preſent *Act*. it would, ſhould it have admitted felling *Oakes* in the *Winter* ſeaſon, when the *bark* will not run.

88. Their *Timber* when fell'd they diſpoſe of for divers uſes, as in other places, ſome being cleft into *pales* which they make uſe of here, not only for *fencing*, but to lay their *thatch*

[s] *Joh. Evelyn's diſcourſe of Forreſt trees Chap.* 31. [t] *See Chap.* 6. §§. 27. 30. *and* 31. [u] *Keeble's Statutes at large. An.* 1. *Jac.* 1. *Chap.* 22. §. 20.

on,

on, inſtead of *laths*, as I obſerved about *Hanford* and great *Fenton*, which I take to be a ſtrong and very good way. It may be reckon'd amongſt the *Arts* too relating to *Timber*, that there have been very long *ſtructures* made in this County out of ſhort pieces of *Timber*: I ſhall not compare them with the *floores*, *roofs*, &c. made of the like in *Oxfordſhire* [w], having not ſeen the thing it ſelf I am about to mention: but it is certainly true that there was a large *bridg* ſtanding within memory over the *Caſtle* ditch at *Tutbury* (for I ſpake with one there that remember'd it pull'd down) that was made of *pieces* of *Timber* whereof none were much above a *yard* in length, and yet was not ſupported underneath either with *pillars* or *archwork*, or any other *prop* whatſoever. Which yet is not ſo curious a piece of *Art*, but that it ſeems to have been known as long agoe as *Fryar Bacon*, who amongſt other ſtupendous *artifices*, ſeems to mention ſuch an one: *Infinita alia*, ſays he, *poſſunt fieri, ut* Pontes *ultra flumina ſine columna, aut aliquo ſuſtentaculo, & Machinæ & ingenia inaudita* [x], i. e. that *Bridges* were made over *Rivers* unſupported either by *pillars* or any other *prop*, with many other ſuch *Machines*, and unheard of *Curioſities*. It is remarkable alſo that in the *Hall* at *Chartley* the *Shuffle-board table* tho' ten yards, 1 foot, and an inch long, is made up of about 260 *pieces*, which are generally about 18 inches long, ſome few only excepted, that are ſcarce a foot; which being laid on longer boards for ſupport underneath, are ſo accuratly joynted, and glewed together, that no *ſhuffle-board* whatever is freer from *rubbs*, or *caſting*.

89. There is a *joynt* alſo in the *Shuffleboard* at *Madeley Manor* exquiſitely well done. But of all the *Joyners* work I met with in this *County*, there is none comparable to that of the new dining room at S[r] *Charles Wolſeley's* at *Wolſeley*, the *carved work* whereof is alſo very good, both done by one *Pierce*; and the *Prebends Stalls* at *Lichfield* (which perhaps may be the beſt of their kind in *England*) are no mean piece of work, being lately rebuilt moſt of them at the charge of the *Gentry* of the *County*, each *Stall* bearing the *Armes* of the *Benefactor* that gave it: but the moſt difficult piece of *wood work*, that was ſhewn me here, was a *Book-desk* at the Worſhipfull *Walter Chetwynd's* Eſq; ſaid to be the *original* of the *kind* now diſperſed over the *nation*, made by Mr *John Enſor* of *Tamworth* out of a ſolid piece of wood with a turning joynt to raiſe it higher or lower as conveniency ſhall require, which *joynt* yet is cut ſo even and cloſe, that it moves

[w] *Nat. Hiſt. of Oxfordſh. Chap.* 9. §. 148. [x] *Rog. Bacon de mirabilib. Artis & Naturæ Epiſt.* 4.

not

not without a ſtrong ſcreaking preſſure of the parts, the thinneſt *groat* not being to be thruſt betwixt the *Commiſſures* of it. And for *Turners* work, I have ſeen nothing equal to *that* of the ſame perſon, who hath contrived an *Engine* to turne *wreath work* ſuch as that repreſented *Tab.* 32. *Fig.* 5. which he ſent me as one of the meaneſt *pieces* of his *Art*, in compariſon of what he can doe of this kind; being able to make ſuch not only of *two*, but of 3 or 4 *twiſts*, or more if he pleaſeth; and that in ſo little time, that he can *turn* 20 of theſe, whilſt one is *cut* or *raſp't*, the only ways they could make ſuch at *London* and *Oxford*, that I could by any means hear of. He alſo cuts *wreath'd pillars* with the ſame *Engine* (that are not *through-work*) which plainly demonſtrate that he does *turn* the other, the *furrows* whereof are ſo very *deep* and *narrow*, that it is impoſſible they ſhould be cut by any other toole, but by ſome *Engine* for *turning*, whereof there is a *Specimen* in the leggs of the *Altar* in *Univerſity College* Chappel, in the *Univerſity* of *Oxford*.

90. Of the *Arts* they uſe here in ordering their *Fruit-trees*, ſome concern them whil'ſt *young* and *tender*; others when grown *old*: as to the former of theſe, I obſerved at *Purton* in a new plantation of Sr *Walter Wrotteſleys*, where there was earth caſt up about each tree in forme of a *baſon* to receive the benefit of the *rains* and *dews*, that he had alſo planted *beans* upon the ſame raiſed earth round every *one* of them: which he told me did not only prevent other *graſſes* or *weeds* which would elſe grow there; but alſo preſerve the *root* of the *tree* from the parching heat of the *Sun* in a due moiſture: which no queſtion may be a way very advantageous to *young plantations* in great and laſting *droughts*. And betwixt *Wrotteſley* and *Patingeham* not farr from *Nurton*, whereabout they are arrived to that height of *planting*, that I found ſome of their *hedges* ſet with *fruit trees*, and divers *ſtocks* new grafted: I obſerved the *feathers* of *Crows* and other *fowle* ſtuck in the *clay* which was put round the *graffs*, to prevent all ſorts of *birds* from lighting on them, eſpecially thoſe of any great bulk, which many times break them with their weight: a device not to be contemn'd, tho' perhaps ſome may imagine it an over nice *proviſion*. For enlivening *old trees*, the experienced Sr *Simon Degg* in a paper he ſent me concerning *improvements*, &c. ſeems to favour the laying *Lime* to their *roots* when old, which indeed in all likelyhood may be agreeable enough; it having this influence upon *Cherry-trees* as *Pliny* aſſerts, that it haſtens the ripening their fruit, *Cæraſos præcoces facit, cogitque matureſcere, calx admota*

admota radicibus[y], which I ſuppoſe ought to be done in a moderate quantity.

91. And it being an ordinary diſtemper eſpecially of *old trees* to be over-run with *Moſs*, which ſucks away ſome of the beſt of the *Sap*, and ſo weakens the *tree* that it bears little or nothing; they cure it here as elſewhere, by *emuſcation*, which they doe not with the *Marra* of *Laurembergius*[z], the wooden inſtrument, or hair-cloath of Mr *Evelyn*, after a ſobbing rain[a]: but as they think at leaſt a much better way, *viz.* as I was told by that prudent *Gent.* Mr *Swynfen* of *Swynfen*, by ſetting *fire* to it with a wiſp of ſtraw at divers places, which will quickly run all over the *tree*, and ſo quite free it of that *annoyance*. And this they generally chuſe to doe about *Chriſtmaſs* time, if it prove a dry ſeaſon, and more particularly at *Twelftide* to make a ſhew about the *Country*, that being alſo the time they make *fires* upon the *hills* in many places in memory of our deliverance from the *Daniſh* Yoke, which yet *Henry* of *Huntington* expreſſly ſays was celebrated elſewhere on the feaſt of St *Brice*, i. e. the 13th of *November*[b]. This ſetting *fire* to the trees they call a *blaſe*, and poſſibly might be the time of keeping the feaſt of St *Blaſe* in this *Country*, tho' in other places it was obſerved on the 3^d of *February*[c]: for I find that many of theſe *memorials* were celebrated at different times *pro more loci*, as the deliverance from the *Danes* above mentioned was; and ſo the feaſt of *Hock-tide*, as is amply made appeare in the *Hiſtory* of *Oxfordſhire*[d].

92. Next the *Vegetables*, the *Arts* relating to *Brutes* fall under conſideration, amongſt which firſt of ſuch as concern the *winged Kingdom*, under which head I reckon all *flying Inſects*, as well as *feather'd fowle*, and therefore muſt account for a ſort of *Beehives* they have in this *County*, quite different from any uſed in the *South* of *England*, which they make of *Oſier-twiggs* interwoven like a *basket*, and then plaiſter'd over with a mixture of *Clay* and *Cow-dung*, or as I ſaw ſome at Mr *Rudyards* at the *Abbey* of *Dieu le Creſſe*, dawb'd over with a compoſition of *Cow-dung* and *turff-Eſs*, and over that again with *Lime*. Which ſeem only to be the *hives* of ancient times, ſtill retained here, *Virgil*, *Columella*, and *Palladius* all teſtifying that they were made of ſuch *twiggs* in their days, *Alvearia vimine tex-*

[y] *C. Plinii* 2^di. *Nat. Hiſt. Lib.* 17. *cap.* 27. [z] *Pet. Laurembergii Horticulturæ Lib.* 1. *cap.* 3. [a] *Joh. Evelyn's diſcourſe of Forreſt trees. Chap.* 27. §. 8. [b] *Hen. Huntindoni Hiſtoriar. Lib* 6. *ſub. initium.* [c] *Minſhew's* ἡγεμὼν εἰς τὰς γλώσσας *in verbo Hock-tide.* [d] *Nat. Hiſt. of Oxfordſh. Chap.* 8. §§. 26, 27.

ta, and not only of *Oſiers*, but of the *ferula*, *withy*, &c.[e] and as Mr *Butler* affirms of *privet* and *haſle*[f]; which *Pliny* too adviſes ſhould be coated over with *Cow-dung*, *circumlini Alveos fimo bubulo utiliſſimum*[g], being his very words; to which Mr *Butler*, in the forecited *Chapter*, adds *lime* and *aſhes*. Over all this they put a ſtraw *hood*, as in the *Southern Counties*, to keep the *wax* and *hony* from melting in the *Summer*, and to caſt of the *rain* and keep the *bees* warm in *winter*.

—— nam frigore mella
Cogit hiems, eademque calor liquefacta remittit,
Utraque vis apibus pariter metuenda *——

over which they pegg a ſquare piece of *wood* at the top, as I ſaw ſome in the garden of the Reverend Mr *Rhodes* Rector of *Blithefield*, which caſt of the rain upon the more ſpreading part of the *hood*, which muſt needs otherwiſe enter in ſome meaſure in at the top of it, where the hollow ends of the *ſtraw* are open to the weather.

93. And ſuch as theſe for the moſt part they uſe all over the *Country*, but at the Worſhipfull *John Whitehall*'s of *Pipe-Ridware* Eſq; who is a moſt intelligent *Bee-Maſter*, I was ſhewn great variety of *hives* moſt of his own contrivance: ſome being made ſquare, others round, both placed over one another, with drawers of wood between, like the *Colony hives* deſcribed in *Oxfordſhire*[h]: others he had made out of *hollow-trees*, which were ſawn aſunder at due diſtances, which no doubt on't are as agreeable as any kind whatever, theſe being the firſt *natural hives* for bees, before they were brought under an artificial *regimen*; and therefore it was no doubt, that both *Columella* and *Palladius* commend them for this purpoſe, *ligno cavatæ Arboris fabricentur*, let their hives be made of hollow trees, ſay both thoſe grave *Authors*, in their *Chapters* of *Bee-houſes*[i]. And *Virgil* tells us they delighted to live, *exeſæque arboris antro*†. But the *hives* he preferr'd before all the reſt, he made of *brick*, there being ſeveral *ſtalls* or *gallerys* of them divided into ſquares of *brick*, on three ſides, with *windows* behind and before to ſee their *working*; the fore-*South* windows in *Summer*, being cover'd with *Matt* to preſerve the *hony*. Within theſe *ſquares* of *brick* he ſets his *frames* of *wood*, for the *bees* to work on, which

[e] *Pub. Virgil. Georgic. Lib.* 4. *v.* 34. *Jun. Moder. Columellæ de re Ruſtic. Lib.* 9. *cap.* 6 & *Pallad. Rutilii de re Ruſtic. Lib.* 1. *tit.* 38. [f] *Char. Butlers Hiſtory of Bees Chap.* 3. [g] *C. Plinii* 2^di. *Nat. Hiſt. Lib.* 21. *cap.* 14. * *Pub. Virgilii Georgic. Lib.* 4. *v.* 35, 36, 37. [h] *Nat. Hiſt. of Oxfordſh. Chap.* 9. §. 120. [i] *Locis ſupra citat.* † *Pub. Virgilii Georgic. Lib.* 4. *v.* 44.

he

he can take away as they *work* downward. He makes uſe notwithſtanding both of *ſtraw* and *wicker* hives coverd with *Cow-dung* and *Lime*, but neither of them made after the ordinary manner, *viz.* not *conical* at top, but *cylindraceous*, and open at top and bottom, which he places firſt on the top of the *brick-work*, and underneath again to receive the *bees* at laſt, ſo as to be conveyed again to the top of the *brick-work* as at firſt. Of which *brick-hives* he has ſome ſingle, others many together: but the ſingle he counts beſt, becauſe the moſt manageable.

94. But the niceſt piece of *Art* that ever I ſaw, any way relating to the *feather'd Kingdom*, and indeed the moſt curious, was an *inſtrument* ſhewn me by the right Worſhipfull Sr *Richard Aſtley* of *Pateſhull* Baronet, of his own Invention, only to match *game-Cocks*, diſcovering their *ſizes* both as to lengh and girth, to ſo great an accuracy, that there cannot be eaſily any the leaſt miſtake: for the better apprehenſion of which *Inſtrument* I have here annext it *Tab.* 32. *Fig.* 6. with a *Cock* put in it at full ſtretch; where the Letter *a*, ſhews the *Colliſtrigium* or *pillory*, ſtanding upon a *pedeſtall* fixt to the plate of braſs below, 24 inches long, which opens by the handles at *b*, and ſhutts cloſe of it ſelf by the help of *ſprings* faſtn'd within the *ring*; *c*, a hollow plate placed alſo upon a *pedeſtall*, but moveable in a groove 'twixt *d* and *e*, when drawn by the *coard f*, wound about the *wheel g*; *h h*, ſhew the *Pedicæ* or *ſtocks* ſet alſo upon a movable *pedeſtall* opening and ſhutting as the *pillory*, which drawn out as farr as the length of the *Cock* will permitt, by the coard *i*, that is wound round the wheel *k*, by a *key* or *winder* applyed to the *Axis l*, (as the wheel *g* alſo is) both being ſtopt by the *ſprings m m*, which fall into the *teeth* of the *wheels* at *n o*, give an exact meaſure of the length of the *Cock* to the *eighth part* of an *inch*, according to the *diviſions* upon the latter part of the *plate*. Then for the *Size* of its *body*, it is meaſured by the *girth*, either by the *braſs ring* deſcribed *Fig.* 7. which may be taken in, or let out, likewiſe to the *eighth part* of an *inch*, according to the *diviſions* on the *plate*; or elſe by a *Girdle* and *buckle*, as may be ſeen upon the *cock*: all which have been approved by the beſt *Maſters*.

95. Relating to *four-footed beaſts*, they have a pretty *device* here, which I firſt eſpyed at *Over-Bradnup*, and near *Aſhenhurſt* houſe (formerly the ſeat of an ancient *family* of the ſame *name*) to prevent their *hogs* from rooting; which they doe hereabout (and as I found after in moſt parts of the *County*) not with *rings* as elſewhere, but with a *forked Iron* armed at each end with a *fin*, or *half-barb* of an *arrow*, which being thruſt through

the *Selvedg* of a *hog's noſe*, can by no means return, the bottom or ſquare part of the *fork* that lyes upon the *noſe* being alſo coated with a hollow cylindraceous moveable *ring* as in *Fig.* 8. ſo that he cannot take hold enough to turn up the *earth*. I alſo met in this *Country* with another uſefull *experiment* relating to this ſort of *Animals* at *great-Heywood*, where I was ſhewn by Mrs *Whitby* the virtuous wife of my worthy friend Mr *Thomas Whitby* (whoſe *aſſiſtance* in this *work* I muſt ever acknowledg) the *Runnet* of *Ranton* (ſo call'd as they told me becauſe thence they firſt had it) made of the innermoſt *membran* of a *Calves Stomack* or *Mawe*, which being waſh't clean from all filth, ſalted, and hung up in brown papers, when they have occaſion to uſe it, they only waſh off the *Salt*, and ſteep a bit about the bredth of a ſhilling in 4 or 5 ſpoonfulls of fair water all night, and this *water* put to *milk*, will turn it to *curds*, which being ſo uſefull a thing in *houſwifry*, I could not but mention it.

96. Another odd ſort of *Art* I was told of in this *County*, which muſt not be omitted, of curing the diſeaſe in *Cattle* they here call the *Foule*, that proceeds as 'tis thought from their exceſſive *fatneſs*, which ſometimes falling into their *leggs* and *feet*, cauſes ſuch *impoſtumes* or *cores* of putrifyed matter, that they cannot goe farr; upon which account tho' the *beef* of them be never the worſe for the *ſhambles*, yet being rendered hereby uncapable of being brought to a profitable *Market*, their *owners* are therefore forced to have recourſe to ſome *remedy*, which is commonly *this*. They ſtricktly obſerve the *turf*, where the *Oxe*, *Cow*, or *Heifer* that is thus diſtemper'd, ſets his *ſick foot* when he firſt riſes in the morning, upon which they uſually find ſome of the *Sanies* or matter of the *impoſtume* preſſt out by his weight; this very *turf* with the *impreſſion* upon it, they cut up and hang upon a *tree* or *hedg* toward the *North* wind, which blowing upon it the *beaſt* becomes cured in three or four days: and this I was told about *Tamworth* was frequently practiſed there with good ſucceſs to this day. Which as Sr *Kenelm Digby* thinks ſeems indeed to be done, by a *Sympathetic* return of the *Spirits* of this impoſtumated matter, now mixt with the cold and dry *Atoms* of the *North* wind, to their firſt *ſource* in the ulcerated foot of the *Animal*; the *malady* indeed requiring no other help, than to be well dryed and refreſh't, which is effectually done by the cold nitrous particles of the *Air* coming from that *quarter*[k]. And theſe are all the *Arts* relating to *quadrupeds* worthy notice here, but that at *Pateſhull* in the ſtables, I obſerved the *Mangers* were

[k] *Sr. Kenelm Digby's diſcourſe of Sympathetick powder, ſub finem.*

ſome-

ſomewhat extraordinary, being ſo placed that the *range* of them headed the end of the *barn*, whence the *Oats* might be put into them through *tunnels* in the partition, without bringing them round out of the *barn* into the *Stable*.

97. Laſtly we come to the *Arts* that reſpect *Mankind*, amongſt which as elſewhere the civility of precedence muſt be allowed to the *women*, and that as well in puniſhments as favours. For the former whereof, they have ſuch a peculiar *artifice* at *New-Caſtle* and *Walſall*, for correcting of *Scolds*, which it does too ſo effectually, and ſo very ſafely, that I look upon it as much to be preferr'd to the *Cucking-Stoole*, which not only endangers the *health* of the *party*, but alſo gives the *tongue* liberty 'twixt every dipp; to neither of which this is at all lyable; it being ſuch a *Bridle* for the *tongue*, as not only quite deprives them of *ſpeech*, but brings ſhame for the tranſgreſſion, and humility thereupon, before 'tis taken off. Which being an *inſtrument* ſcarce hard of, much leſs ſeen, I have here preſented it to the *Readers* view *Tab.* 32. *Fig.* 9. as it was taken from the original one, made of *Iron*, at *New-Caſtle* under *Lyme*. Wherein the Letter *a*, ſhews the joynted *collar* that comes round the *neck*; *b*, *c*, the *loops* and *ſtaples*, to let it out and in, according to the bigneſs and ſlenderneſs of the *neck*; *d*, the joynted ſemicircle that comes over the *head*, made forked at one end to let through the *noſe*; and *e*, the *plate* of *Iron* that is put into the *mouth*, and keeps down the *tongue*. Which being put upon the *offender* by order of the *Magiſtrate*, and faſtned with a *padlock* behind, ſhe is lead round the Towne by an *Officer* to her ſhame, nor is it taken off, till after the party begins to ſhew all external ſignes imaginable of humiliation and amendment. And as for any other *Arts* that concern this *Sex*, in one of the lodging rooms at *Trentham Hall* I was ſhewn a moſt delicate linnen ſuit of *hangings*, which being made by *Nunns*, and moſt artificially done, belong to this place, and muſt not be omitted; tho' I muſt confeſs my inability to deſcribe them to that advantage they really deſerve, the whole conſiſting all of *ſquare panes*; ſome great, others little, yet preſerving uniformity; the one half plain, the other wrought in *cheque* with a *topiary* ſort of *Needlework* of ſo great variety, that it is hard (if at all) to find two alike, tho' they are in number great and ſmall, as well as I could tell them, 3317 *Squares*.

98. As for the *Arts* relating to *Men*, it muſt not be expected that any great *improvements*, much leſs any new *Inventions* ſhould have been made here in thoſe we call *Liberal*: but amongſt the *Mechanics*, I met with ſeveral uſeful and curious things; particularly at a *Smiths* ſhop a little *South* of *Mole-Copp*, I found an Engine

that managed a large *Sledg* to ſo great advantage, that it frequently ſupplyed the defect of a man ordinarily had elſewhere for that purpoſe, the *Sledg* being ſet in an *Axis* of wood, from whence goes a rodd of *Iron* faſtned to a *pallet*, that reaches out a little beyond the *Anvil*, which being drawn down by the foot of the *Smith*, who keeps time to it with his *Hand-Hammer*, is returned again by three *ſprings* of *holly*, that claſp the *Axis* the contrary way. The ſame I alſo found at *Betley*, *Caverſwall*, and elſewhere, but ſomewhat different from that near *Mole-Copp*, the *Sledg* being return'd by two poles above it, like the *pole* of a *turning-lathe*, whereas the *ſprings* of the former were faſtned below it. For the better underſtanding whereof, and becauſe altogether unknown in the *Southern* parts, I have cauſed its *figure* to be exhibited. *Tab.* 32. *Fig.* 10. In which the Letter *a* ſhews the *Sledg* fix't in the *Axis* *b*, hanging between two *jambs* or *ſtandards* *c c*, *d* the rodd of *Iron* that comes down to the *pallet* *e* coming out beyond the *Anvill*, *f* the place where the *Smith* ſets his foot when he draws down the *Sledg*, *g g* the *poles* above that return it. With which *Engine* I ſaw a *Smith* make a *Horſe-ſhooe*, as they can alſo any other ſmaller ſorts of *wares*, almoſt as quick as if another had ſtruck the *Sledg* to him.

99. In the *Coopers* trade at the right Honorable the Lord *Wards* at *Dudley Caſtle* I was ſhewn *barrells* in the *Cellar* having *holes* bored in the top of the *head* juſt under the *rim* of them, oppoſite to the *tap* holes, to let forth the *working* of the drink, which ſeems much better than that at the *bung*, the *Spirits* of the *drink* which naturally fly upward; being hereby preſerved; ſcarce any of them paſſing with the *froth* through this *hole*; which when the *drink* has done *working*, is cloſed up with clay, as the *bung* uſually is. And in *Cookery* at the Worſhipfull *Walter Chetwynds* of *Ingeſtre* Eſq; I taſted potted *Otter* ſo artificially order'd by his excellent *Cook*, that it required a very nice and judicious *palat* to diſtinguiſh it from *Veniſon*. And now I am fallen in amongſt the *meats* and *drinks* (which are no where better, or more plentifull, than in this *County*) I cannot forget a piece of *Art*, that I found in the *Hall* of the right Honorable *William* Lord *Paget* at *Beaudeſart*, made for puniſhment of the *diſorders*, that ſometimes attend feaſting in *Chriſtmaſs* time, &c. call'd the *finger-Stocks*; into which the *Lord* of *miſrule*, uſed formerly to put the *fingers* of all ſuch perſons as committed *miſdemeanours*, or broke ſuch *rules*, as by conſent were agreed on for the time of keeping *Chriſtmaſs*, amongſt the *Servants* and *others* of promiſcuous quality: theſe being divided in like manner as the *ſtocks* for the *leggs*, and having ſeveral *holes* of different *Sizes* fit for the ſcantlings of all *fingers*, as repreſented in the *Table Fig.* 11.

100. And

TAB. XXXII.

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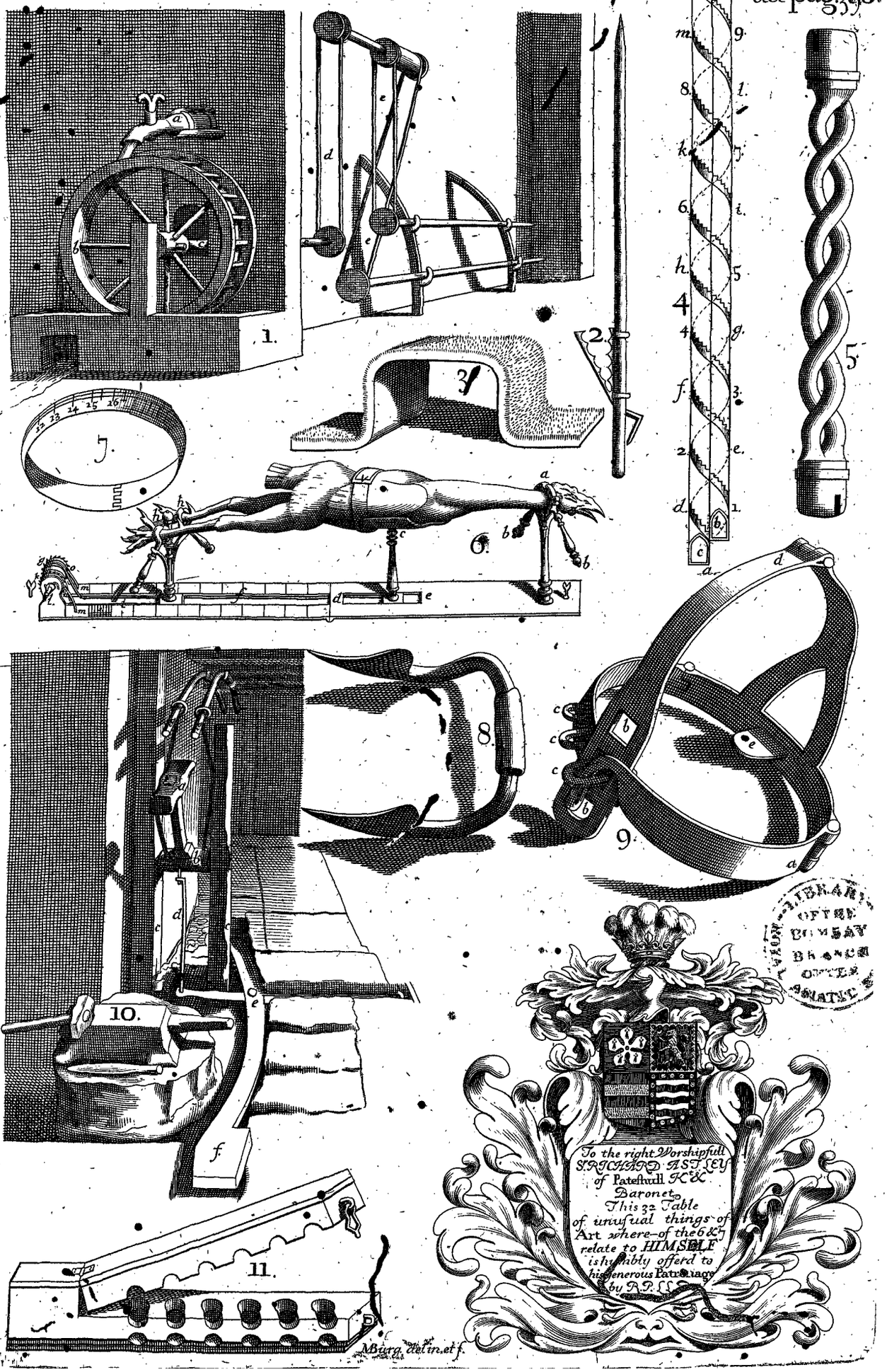

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100, And theſe are all the *Arts* that concern *Mankind*, unleſs it be alſo worth notice that at the right Honorable the Lord *Gerards* at *Gerards Bromley*, there are the pictures of *Henry* the great of *France* and his *Queen*, both upon the ſame *indented board*, which if beheld *directly*, you only perceive a confuſed piece of work; but if *obliquely*, of one ſide you ſee the *Kings*, and on the other the *Queens* picture, which I am told (and not unlikely) were made thus. The *board* being *indented* according to the magnitude of the *Pictures*, the *prints* or *paintings* were cut into *parallel pieces*, equal to the depth and number of the *Indentures* on the board; which being nicely done, the *parallel pieces* of the *Kings* picture, were paſted on the *flatts* that ſtrike the Eye beholding it *obliquely*, on one ſide of the *board*; and thoſe of the *Queens* on the other; ſo that the edges of the *parallel pieces* of the prints or paintings exactly joyning on the *edges* of the *Indentures*, the *work* was done. To which let me add (it being a *Curioſity* much of the ſame *kind*) that Mrs *Rebeckah Normanſell* of *Wolverhampton*, has ſo excellent a hand in the management of her *Ciſers*, that ſhe has curiouſly cut out the *Tomb* abovementioned[1] of that eminently Loyal *Gent.* Coll. *John Lane* with all the *Trophies*, *Inſcriptions*, &c. in paper: to which I never ſaw any thing equal, but ſome few ſuch pieces in the *Muſæum* at *Oxford*[m], and part of a *Greek* Chapter I once ſaw at *London* cut out of *white paper*, which laid upon *black*, was as legible as the ſame in any printed *Greek-Teſtament*.

[1] *See Chap.* 8. §. 76. [m] *Vid. Scrinium Liſterianum in Muſæo Aſhmoleano.*

CHAP. X.

CHAP. X.

Of Antiquities.

1. FOR Satisfaction of the *Reader*, upon what terms I add this *Chapter* of *Antiquities* to my *Natural Hiſtory*, it ſeeming to ſome altogether forraigne to the purpoſe: I take leave to acquaint him, before I advance any further, that I intend not to meddle with the *pedigrees* or *deſcents* either of *families* or *lands*, knowing a much abler pen now imployed about it *; nor of the *antiquities* or *foundations* of *Religious houſes*, or any other pious or Civil performances: it being indeed my deſigne in this *Chapter*, to omit, as much as may be, both *perſons* and *actions*, and cheifly apply my ſelf to *things*; and amongſt theſe too, only of ſuch as are very remote from the preſent *Age*, whether found under ground, or whereof there yet remain any footſteps above it; ſuch as ancient *Medalls*, *Ways*, *Lows*, *Pavements*, *Urns*, *Monuments* of *Stone*, *Fortifications*, &c. whether of the ancient *Britans*, *Romans*, *Saxons*, *Danes*, or *Normans*. Which being all made and faſhioned out of *Natural* things, may as well be brought under a *Natural Hiſtory* as any thing of *Art*: ſo that *this* ſeems little elſe but a continuation of the former *Chapter*; the ſubject of *that*, being the *Novel Arts* exerciſed here in this preſent age; and of *this*, the *ancient ones*; whereof in the ſame order as in the *Hiſtory* of *Oxfordſhire*[a].

2. And yet the firſt thing that offers it ſelf to my conſideration, is the *original people* that inhabited this *Country* before the coming of the *Romans*: I know both *Ptolomy* and Mr *Camden* joyntly agree, that they were the *Cornavii* that were ſpread over *this*, and *Warwic*, *Worceſter*, *Salop*, and *Cheſhires*: but *Tacitus* mentioning a *Britiſh* people hereabout that were call'd *Iceni*, who took diſtaſt at the *Propretor Oſtorius Scapula*'s blocking up their *Country-men* between the Rivers *Antona* and *Sabrina*[b], I cannot but ſuſpect they belong'd in part to this place: for that the *Simeni* of *Norfolk*, &c. whom Mr *Camden* would have to be the only *Iceni*, they ſeem to be too remote to be concerned at ſuch an *action*; and ſo does the River *Nen* to be the *Antona* of *Tacitus*, as both Sr *Hen. Savil*[c], and Mr *Camden*

* Walter Chetwynd *of Ingeſtre Eſq*; [a] *Nat. Hiſt. of Oxfordſh. Chap.* 10. §. 1. [b] *Corn. Taciti Annalium Lib.* 12. *cap.* 31. [c] *Sr Hen. Savil's Tranſlat. of the* 12. *Book of Tacitus's Annals.* §. 8.

would

would have it [d], which perhaps may be a corruption through frequent tranſcribing for one of the *Avona's*, betwixt which and *Severn* they might eaſily be coped up; but not ſo betwixt it and the River *Nen*, which is ſo far from joyning with it, that it holds a quite contrary courſe. Beſide it ſeems pretty probable that theſe *Iceni*, were neighbours to the *Corigi* or *Cangi*, againſt whom the *Roman* Army was preſently lead after the defeat of the *Iceni*, whoſe Territories reached, as *Tacitus* himſelf alſo confeſſes, almoſt to the *Iriſh* Sea [e], wherein in a manner he comes up to *Ptolomy*, who places the Καγκανῶν ἄκρον or *Promontorium Ganganorum* at *Ormeſſhead*-point or *Lheyn Gogarth* in *Caernarvonſhire* [f]: the *Cangi* in all likelyhood alſo held all *Denbighſhire*, and a piece of *Cheſhire*, where the old *Condate* now *Congleton*, and *Conghull*, ſeem to preſerve the Memory of them.

3. But that which moves me moſt to think there was ſuch a people as the *Iceni* both in *Worceſterſhire* and *Staffordſhire*, is the *Roman Conſular way* which remains to this hour, and paſſes through both thoſe *Counties* by the name of *Ickenild-ſtreet*, which how it ſhould come by, but from the people whoſe Territories it was made through, I cannot imagine. If it be objected that the *Iceni*, which *Tacitus* there mentions, muſt needs be the ſame with thoſe of *Norfolk*, &c. for that at the ſame place he ſpeaks of a *Colony* of veteran Soldiers poſted at *Camalodunum*, a City of the *Trinobantes* next neighbours to the *Iceni* of *Norfolk*, &c. to repreſs the rebell *Britans* upon all occaſions, which were drawn out at that time againſt the *Silures* [g]. I anſwer that if we may beleive *Ptolomy* there were two *Camalodunums*, one in the *Country* of the *Trinobantes*, and another in the Territories of the *Cornavii* or *Cangi*, about the South parts of *Cheſhire*, whence he might much more probably draw out theſe Veteran Soldiers, being much nearer to the *Silures*, than from the *Camalodunum* of the *Trinobantes*: not to mention that *Ptolomy* calls that of the *Trinobantes* Καμυδόλανον *Camudolanum*, and not *Camulodunum* as he does that of the *Cangi*, which is more agreeable to *Tacitus* [h].

4. It being thus made at leſt probable, that the original Inhabitants of this *County* might alſo be *Iceni*, as well as thoſe of *Norfolk*, &c. who though they at firſt carryed themſelves fair to the *Romans*, yet ſeeing them uſe their neighbours in that manner as they did, thus ſtoutly interpoſed: let us next take a view of what *markes* there yet remain, of their places of *ha-*

[d] *Camden in Northamptonſhire.* [e] *Corn. Taciti Annalium. Lib.* 12. *cap.* 32. [f] *Claud. Ptolomæi Geograph. Lib.* 2. *cap.* 3. *Edit. Bertii.* [g] *Corn. Taciti Annalium. Lib.* 12. *cap.* 32, 33. [h] *Claud. Ptolomæi Geog. loco ſupra citato.*

bitation, *defence*, &c. to one or both of which I think I cannot but referr that noble *antiquity* near *Wrotteſley* in this *County*, where there yet remains, either the foundation of ſome ancient *Britiſh* City, or other fortification, of great extent; including above a moyety of *Wrotteſley*, and part of *Pateſhull*, *Pepperhill*, and *Bonningal* parks; alſo ſome parcell of the two Commons of *Kingſwood* and *Weſt-bach*, the whole containing in circuit about 3 or 4 miles, lyeing part in *Staffordſhire* and part in *Shropſhire*, as mark't out by the *ſhaded line* in the *Map*. Within the limits whereof there are ſeveral *partitions* yet viſible, running divers ways like the *ſides* of *ſtreets*, tho' hard to be fully traced, becauſe interrupted both by the *mattock* and *plow*, the foundations being dayly dugg up by the *former*, to mend high-ways, make incloſures, and pavements; and then all levell'd by the *latter*: which together with the large hinges for doores, an antique dagger, that have been found here, and ſome of the ſtones ſquared; make me rather think it ſome ruinated *City*, than a *fortification* only: otherwiſe I could have been content to have thought it ſome ſuch *Brittiſh vallum*, or encampment, as *Tacitus* acquaints us *Caractacus* made upon a hill in *Shropſhire*, upon the banks of the River *Clun*, with great ſtones rudely heap't upon one another, to defend him from the impreſſions of the *Roman* Army[i], the remains whereof, ſaith *Camden*, are to be ſeen at this day[k].

5. Such a *Rampire* as this, I ſay, I could have eaſily believed it, there having been juſt ſuch great ſtones found hereabout, as we read *Caractacus*, and other *Britiſh* Princes, were uſed to fortify withal: whereof I was told of one, that contained 100 loads; another ſo great, that after 10 loads of ſtone were hewed off it, required 36 yoaks of Oxen to draw it, and made the great *Ciſtern* in the *Mault-houſe* at *Wrotteſley*, which though left very thick both at bottom and ſides, is yet ſo capacious, that it will wet 37 ſtrike of barley at a time. Or at leſt I could have thought it ſome *Camp* of the *Danes*, who as *Simeon Dunelmenſis*[l], *John Brompton*[m], and *Florentius Wigornienſis*[n] all teſtify, were overthrown at *Totenhale*, *Teotenhale*, or *Theotſanhele*, now *Tettenhall* not farr off*; the whole, or greateſt part of it, being I think in that *pariſh* at this very day: but that the *parallel partitions* within the out wall, whoſe foundations are ſtill viſible, and repreſent *ſtreets* running different

[i] *Corn. Taciti Annalium Lib.* 12, *cap.* 33, 34, 35. [k] *Camden's Britannia in Shropſhire.* [l] *Sim. Dunelmenſis Hiſt. de geſtis Reg. Angl. in An.* 911. [m] *Chron. Johan. Brompton Abb. Jornal. in vita Edwardi Sen.* [n] *Florent. Wigorn Chron. ex. Chron. in An.* 911. * *Vid.* §. 36. *infra.*

ways,

ways, put it I think out of doubt, that it must have been a *City*, and that of the *Britans*, for that I could hear of no name it ever had, nor have the Inhabitants hereabout any tradition concerning it, of any sort whatsoever, somewhat whereof would have certainly been preserved, had it either been *Roman*; or so late as either the *Saxon*, or *Danish* conquests of this *nation*.

6. And this is the only *Antiquity* that seems to have any pretence of ever having been a *British* habitation, unless the tradition concerning *Willbrighton* in this *County*, viz. that the *Romans*, when they came against it, termed it *Villam Britonum* (which name it still keeps with little alteration) may pass for one: but there being no footsteps remaining of its ever being *tenible*, tho' it lyes high, I much question whether this tradition, have not been broached of late years, by some fond *Etymologist*. Tho' it cannot be deny'd that the *Romans* had indeed some action hereabout, there being a raised work here at *Morton* not farr off, which seems to be of their fashion; and no question the large *Meere* that lyes just below it, had its name of *Aqualat* [*quasi aqua lata*] from them; and the *banks* on the N. N. E. side of it, the name of *Anc's-hills*, from some *Roman* Captain that lay upon them, whose *name* or at lest *prænomen* perhaps might be *Ancus*. Not to mention that all these are in or near the parish of *Forton*, and that there is a village not farr off also call'd *Warton*, which are both thought to derive their names from some such actions, as are presumed by the story, to have happen'd hereabout. But I doe by no means prescribe to my *Reader* in this matter, desiring him to beleive no more than he thinks these grounds will fairly admitt of; every body being left in this, and all other matters whatever in this *History* to his own creed.

7. But though I could certainly meet with no other places of *habitation* of the *Britans*, either fortify'd with great stones, or otherwise fenced; yet there are several *fortifications* made of *earth*, cast up into high *banks*, with *entrenchments* round them, in such manner and form as the places would best admit of, that may be presum'd to be theirs. For that the *Britans* did fortifie after this manner too, as well as with *stones*, we have also the testimony of *Tacitus*, who tells us that the *Iceni* above-mention'd did chuse a place for fight, *septum agresti aggere, aditu angusto, ne pervius equiti foret*, fenced with a bank of *earth*, having a narrow *entrance*, to keep off the *horse*°: such as that

° *Corn. Taciti Annalium Lib.* 12. *cap.* 31.

about a quarter of a mile to the *Weſtward* of *over Stonall*, where there is an old *fortification* ſituate upon a hill, call'd in ancient *writings*, relating to the *lands* hereabout, as I was told by Mr *Brown* of *Footerley* hard by, *Caſtle-old-ford*, which perhaps ſhould be rather written *Caſtle-old-fort*, like the *Blæſtium* of *Antonine*, in *Britiſh*, *Caſtle-bean*, or *Caſtrum vetus* [p], being encompaſſed with a double *trench*, in *diameter* between the entrances (that ſeem to have been on the SE and NW ſides) 160 paces. Which I am willing to think to be a *Britiſh Rampire* becauſe of the *ancient* name, and that I cannot account for any *action* hereabout of later date: tho' I muſt confeſs the *ſpear-heads*, and other warlike inſtruments plow'd up within it, all of *Iron*, ſeem to argue it of leſs ſtanding.

8. For tho' *Cæſar* acquaints us that the *Britans* had *Iron*, yet they finding it then by the *Sea* ſide only, and in ſuch ſmall quantities, that they made their *Mony* of it [q]; we have reaſon to beleive that for the moſt part at leſt they ſharpen'd their *warlike inſtruments* rather with *ſtones* than *metall*, eſpeciall in the more *Northerly* and *inland Countries*, where they ſometimes meet with *flints* in ſhape of *arrow-heads*, whereof I had one ſent me by the learned and ingenious *Charles Cotton* Eſq; found not far from his pleaſant Manſion at *Beresford*, exactly in the form of a *bearded arrow*, jagg'd at each ſide, with a larger *ſtemm* in the middle, whereby I ſuppoſe it was fix't to the wood, as in *Tab.* 33. *Fig.* 1. Theſe they find in *Scotland* in much greater plenty, eſpecially in the *prefectury* of *Aberdeen*, which as the learned Sr *Robert Sibbald* informs us, they there call *Elf-Arrows*, *Lamiarum Sagittas*, imagining they drop from the clouds, not being to be found upon a diligent ſearch, but now and then by chance in the high beaten roads [r] (like the tranſparent *Ombriæ*, or *hexangular Chryſtals* of *Italy* above mention'd [s]) upon which account it is too, that the noble *Veroneſe Ludovicus Moſcardus*, calls them *Pietre Ceraunie*, whereof he has given us ſeveral *Sculptures*, not unlike to ours, as repreſented above [t].

9. Nor did the *Britans* only head their *arrows* with *flint*, but alſo their *mataræ* or *Britiſh darts*, which were thrown by thoſe that fought in *Eſſedis* [u], whereof I gueſs this is one I had given me, found near *Leek*, by my worthy friend Mr *Thomas Gent*, curiouſly jagg'd at the edges with ſuch like *teeth* as a *Sickle*,

[p] *Camden's Britannia in Herefordſhire.* [q] *C. Jul. Cæſaris Commentarior. de bello Gallico Lib.* 5. [r] *D. Roberti Sibbaldi Prodrom. Nat. Hiſt. Scotiæ. part.* 2. *Lib.* 4. *cap.* 7. [s] *Chap.* 5. §§. 5, 6. [t] *Muſæi Ludovici Moſcardi Lib* 2. *cap.* 50. [u] *C. Jul. Cæſaris Commentarior. de bello Gallico Lib.* 4.

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and otherwiſe wrought upon the *flat*, as in *Tab.* 33. *Fig.* 2. by which we may conclude, not only that theſe *arrow* and *Spear-heads*, are all *artificial*, whatever is pretended; but alſo that they had anciently ſome way of working of *flints* by the *tool*, which may be ſeen by the *marks*, as well as they had of the *Egyptian Porphyry*: which as the aforeſaid worthy *Gent.* Sr *Robert Sibbald* thinks they learned of the *Romans* [w], who, as *Aldrovandus* aſſures us anciently uſed ſuch *weapons* made of ſtones [x]. However ſtill it not being hence deducible, but they may be *Britiſh*, they are not ill placed here, whatever original they have had from either *Nation*. Either the *Britans*, *Romans*, or *both*, alſo made them *Axes* of *Stone*, whereof there was one found on the *Wever-hills*, made of a ſpeckled *flint* ground to an edg, in the form as deſcribed *Tab.* 33. *Fig.* 3. and I heard of ſuch another that was met with on the *Morridg*; which how they might be faſtned to a *helve*, may be ſeen in the *Muſæum Aſhmoleanum*, where there are ſeveral *Indian* ones of the like kind, fitted up in the ſame order as when formerly uſed.

10. Near *Seaſdon* in this *County* upon the edg of *Shropſhire*, at a place now call'd *Abbots* or rather *Ape-wood Caſtle*, without all doubt there was a very ancient, and no leſs conſiderable *fortification*; it ſtanding very lofty on a round *Promontory*, and having a vaſt proſpect to the *South-Weſt* into *Shropſhire*, at which very place tho' the *entrenchment* be but ſmall, yet the whole ſteep ridg of the bending bank all along twixt it and *Chaſphill*, for a mile together, having *hollows* cut in the ground, over which 'tis thought anciently they ſet their *Tents*, the whole ſeems but one continued *fortification*, the two *hills* at each end being the principal *baſtions*: which I am alſo inclined to beleive to have been a *Britiſh* work, for the reaſons before alleged in the caſe of *Caſtle-old-fort*: and that the *Lows* on *Womborn* heath not farr diſtant, may have been raiſed over ſome eminent *Roman* Commanders, loſt in the conflicts they might have with the *Britans* hereabout. And for other *Britiſh antiquities* that are any way probably ſuch, I met with none, unleſs the great *ſtone* in a field *South* of *Cannock* Church; and that other of a ſquare figure a little tapering towards the top, 2 yards and an inch high, and near 4 yards about, having two *chops* in the top of it, ſo that at a diſtance it appears a *triceps*, ſtanding in a leaſow near the two *Comptons* in the pariſh of *Kinfare*, by ſome called *Baſton*, by others *Bolt-ſtone*,

[w] *Cl. D.* Rob. Sibbaldi *Prodromi loco ſupra citato.* [x] *Ulyſſ. Aldrovandi Muſæi Metall. Lib.* 4. *cap.* 17.

there being a ſtory that a *Gyant* threw it from *Aſton* (a place under *Kinfare* edg) hither; may be accounted ſuch.

11. Which perhaps they may, and not without reaſon; whether we eſteem them as *Britiſh Dieties*, as the *Devil's bolts* in *York-ſhire*, and *Devils coits* in *Oxford-ſhire*, have been proved to be at large [y]; or ſome memorials of *battles* fought thereabout; that at *Kinfare* being alſo called by the more knowing ſort of people, by the name of the *battle-ſtone*: the *Britans* uſually erecting ſuch *monuments* as theſe, upon a *civil*, as well as a *religious* account. Witneſs *Kits-Coty-houſe* in *Kent*; *Roll-wright* in *Oxfordſhire*; and *Stonehenge* in *Wiltſhire*; the two former I think being certainly ſet up in memory of *battles* [z]: and the latter moſt probably as ſome *Britiſh Forum* or *Temple*, and not of any *Roman* pagan *Diety*, as *Inego Jones* would have it [a]: the *Romans* at that time being ſkillfull in *Architecture*, and moſt other *Arts*, and therefore no queſtion had they built it, would have made a much more artificial *ſtructure*, than this appears to have ever been; nor ſhould it have wanted an *inſcription*; or being ſome way or other tranſmitted in their *writings* down to all poſterity. Nor is it leſs unlikely, that it ſhould ever be erected for a *Daniſh forum* for *inauguration* of their *Kings* as Dr *Charleton* would perſwade us [b]; for then certainly all the *Kings* of the *Daniſh* race had been crowned either there, or elſe at *Rollwright*, or ſome other ſuch like *Cirque* of ſtone elſewhere; whereas we find *Canutus* crowned at *London*, *Harold Hareſoot* at *Oxford*, and *Hardi-canute* likewiſe at *London* [c]. Not to mention that the *Daniſh* tranſactions here in *England* are of ſo late a date, that our *Hiſtorians* have given us a tolerable account of them from their very firſt entrance; and would not certainly have been ſilent of ſo conſiderable a *ſtructure*, had they been the *Authors* of it, either as a *Forum*, or upon any other account.

12. Nor have I more to add of *Britiſh antiquities* but that a ground calld *Chriſtianfield* near *Stitchbrook* in this *County*, is ſaid to be the place where St *Amphibalus* taught the *Britiſh Chriſtans* converted by the Martyrdom of St *Alban*, who flying from the bloody perſecution of *Maximian* raiſed in *Britan An.* 286, followed him hither 84 miles, as *Roſs* affirms it, from the place of their converſion [d]; where the *Ro-*

[y] *Nat. Hiſt. of Oxfordſh. Chap.* 10. *from.* §. 101. *to* §. 106. [z] *Will. Lambard's perambulation of Kent in Aylesford. and Nat. Hiſt. of Oxfordſh. Chap.* 10. §§. 95, 96. [a] *Inigo Jones's Stonehenge reſtored. and Joh. Webb's vindication of Stonhenge reſtored.* [b] *Walt. Charleton's Chorea Gigantum, or Stonhenge reſtored to the Danes.* [c] *Sr Richard Baker's Chronicle of the Kings of England in their reſpective reignes.* [d] *Ex libro Johannis Ruſi MS. de Epiſcopis Wigorn.*

Britans

mans that were ſent after them (ſome ſay from *Verulam*, others from *Etocetum* now *Wall* as the tradition goes here) finding them in the exerciſe of their Religion, tooke them and carryed them to the place where *Lichfield* now is, and martyred 1000 of them there, leaving their bodies unburyed to be devowered by *birds* and *beaſts*[e], whence the place yet retains the name of *Lichfield* or *Cadaverum campus*, the field of dead bodies to this very day, the *City* bearing for their *Device*, rather than *Armes*, an *Eſcocheon* of *Landskip* with many *Martyrs* in it, in ſeverall manners maſſacred: amongſt which yet we muſt not reckon St *Amphibalus*, whom they carryed away with them to *Verulam*, and martyr'd him at *Redburn* a place between that and *Annable* which took its name from *him*[f], as *Lichfield* from his *Diſciples*. And this I take to be the utmoſt antiquity of that *City*, which yet ſeems older than *Stafford*, tho' it give denomination to the whole *County*, whereof we hear nothing till about 200 years after in the time of *Merlin* the *Britiſh* Prophet who flouriſh't about the year 480, and wrot that two *Kings* ſhould *dubium prælium committere propter Leenam* in Vado Baculis, which I know not how to expound, unleſs he meant they ſhould contend for a *Miſtriſs* there. Of the later *Antiquities* of which two places, the *Reader* may expect more hereafter.

13. Of the *Roman Antiquities* yet remaining in this *County*, the moſt conſiderable of any are their *publick ways*, there being two of the four eminent *Baſtitæ ſtratæ*, otherwiſe call'd *Prætorian*, and ſometimes *Conſular* or *Military* ways, viz. *Watlingſtreet* and *Ickenildſtreet*, yet remaining high and lofty, being but little decay'd, or any way interrupted either by *time* or the *plow*: the privileges whereof, and manner of making them, being diſcourſed of in *Oxfordſhire*[h], I ſhall wave them here, only noting by the way, that they ſeem not here to have uſed the ſame *Method* preſcribed by *Statius*, i. e. firſt digging a deep trench till they come to a good bottom, and then raiſing a high ridg upon a firm foundation of other materials than what they found upon the place[i]: theſe ſeeming only to be made of gravel dugg all along by the ſides of each way, as may be ſeen upon the *Watlingſtreet*, as you paſs betwen *Wall* and *Frog-Homer*, *Occamſley pitts* near *Knaves-Caſtle* ſeeming to have been made upon this account only; and more plainly upon the *Ickenildſtreet* near *little-Aſton*: the former entering the *County* at *Faſeley* bridge and running from *ESE* to *WNW*

[e] *Ibidem.* [f] *Vid. Jacob. Uſerium de Britanicar. Eccleſiarum primordiis.* [g] *Inter collect. Joh. Lelandi MS. in Bib. Bod. NE. F.* 11. 18. [h] *Nat. Hiſt. of Oxfordſh. Chap.* 10. §§. 19, 20, 21. [i] *Papin. Statii Silvar. Lib.* 4. *in via. Domitian.*

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as farr as 4 *Croſſes*, where it turns a little, and bears ſomewhat nearer the *Weſt*, about *W* and by *N*, and ſo goes into *Shropſhire* at *Crackley-bank*; and the latter entring *Staffordſhire* a little to the *Weſtward* of Sr *Charles Holt's* park, and running from *S S W* to *N N E* to a little beyond *Shenſton*, where it croſſes the *Watlingſtreet*, and then bears away *N E* and by *N*, and ſo enters *Darby-ſhire* over the *Dove* at *Monks-bridg*: both lyeing within the *County* in manner and form, and bearing to the *Villages* placed on each hand, as deſcribed in the *Mapp* perfixt to this *Eſſay* by two ſhaded lines.

14. Now that the former of theſe is the true *Watlingſtreet*, tho' *Holinſhead* mentions another that paſſes through *Yorkſhire* [k], I think ſo very evident that there needs no debate: but whether the latter be the true *Ickenildſtreet*, or that mention'd in *Oxfordſhire* [l] deſerves conſideration; both retaining the ſame *name* to this very day, and perhaps for the ſame reaſon, as either leading to, or paſſing through the *Countrys* of the *Iceni*, there ſeeming to have been two *Colonies* of *Britiſh* people that enjoy'd the ſame *name*: thoſe mention'd by *Tacitus*, who took diſtaſt at *Oſtorius's* blocking up the *Britans* between *Antona* and *Sabrina*, being more likely the inhabitants of *this County* and *Worceſterſhire*, than of *Norfolk*, &c. as was ſhewn above. So that the *Ickenildſtreet* of *Oxfordſhire* ſeems to have been ſo call'd, for that it tends toward the *Iceni* of *Norfolk*, *Suffolk*, *Huntington*, and *Cambridgſhires*; and *this*, for that it was made through the *Country* of the other *Iceni*, both being rightly ſo call'd; only I look upon this of *Staffordſhire*, as the more remarkable of the two, and ſo to be that *Ickenildſtreet* which is uſually reckoned one of the four *baſilical* or *great ways* of *England*, and not that of *Oxfordſhire*: this being raiſed all along, payed at ſome places [m], and very ſignal almoſt wherever it goes; whereas that of *Oxfordſhire* is not ſo *there*, whatever it may be in other *Counties*; which alſo ſeems to hint that the *Iceni* of theſe *Counties* were a more conſiderable people too, than thoſe of *Norfolk*, &c.

15. Upon theſe *Conſular*, *Prætorian*, or *military ways*, the *Romans* eſtabliſhed their *Itineraries*, *Stations*, or *Manſions* at certain diſtances, which ſeem to have been the extent of the daily *marches* of their *Soldiers*; the length whereof as they were ſeldom under ten, ſo they as rarely exceeded thirty *Italian* miles. Of which *Stations* or *Manſions* I find but two certain, within the limits of this *County*, and theſe both upon

[k] *Raphael. Holinſhead's Hiſt. deſcript. of Britan. Vol.* 1. *Chap.* 19. [l] *Nat. Hiſt. of Oxfordſh. Chap.* 10. §§. 22. 23. [m] *Upon* Burton *Moore.*

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the *Watlingſtreet*, viz. *Etocetum* and *Pennocrucium*, the former whereof Mr *Camden* computes, and that rightly, to be the village of *Wall*, about a mile and ½ to the S S W of *Lichfield*[n], where juſt at the ſame diſtance that *Antonine* ſetts betwixt it and *Manueſſedum* or *Manceſter* in *Warwickſhire*, there remains in the *Lane* upon the north ſide of the *ſtreet-way* ſome ſmall fragments of a wall, which 'tis ſuppoſed gave the preſent *name* to the *village*, and in the corn-field now call'd the *butts* between the *village* and ſome ſmall *cottages* on the *brook* below, I was ſhewn two *pavements* one above the another at leſt 4 foot, the uppermoſt (which lay within 18 inches of the ſurface) being made for the moſt part of *Lime* and *rubble-ſtone*; and the lowermoſt, of *pebbles* and *gravel* knit together with a very hard cement about 4 inches thick, laid upon a foundation of *Roman brick*; and under them *boulder-ſtone* of a foot thick more. Above the uppermoſt of theſe they often meet with *Roman* mony, whereof I was ſhewn 3 pieces, one of *Nero*, another of *Domitian*, and a third ſo eaten with ruſt, that it could not be diſtinguiſht. On the other ſide the way in a ground belonging to *Cheſterfield*, there are alſo *antiquities* found in digging, amongſt which they lately met with the pedeſtall of an antique broken *pillar* very well wrought, which lay pretty deep juſt on the brink of the way, and now remains at the widdow *Smiths* in *Cheſterfield*, where I took the draught of it, in order to be engraven, as in *Tab.* 33. *Fig.* 4.

16. But tho' Mr *Camden* be right in the ſituation of the old *Etocetum*, yet I think him not ſo, in his placing *Pennocrucium* at *Penkridg* in this *County:* for tho' the name be more agreeable, than of any other place, yet it not lying upon the *Watlingſtreet*, but two miles off it, nor at the diſtance aſſigned in the *Itinerary* of *Antonine*, I cannot but rather think it to have been at *Stretton*, ſo call'd by the *Saxons* (*quaſi* the *Town* upon the *ſtreet*) after it came into their poſſeſſion, which lyes juſt upon the *way*, and anſwers the diſtance very exactly, for tho' it meaſure but eleven *Staffordſhire* miles, yet they may very well be eſteemed 12 *Italian* ones, which is the juſt diſtance aſſigned by *Antonine* twixt thoſe two *Stations*[o]. Nor lyes there any objection againſt this conjecture, but that no *Roman* coynes or other antiquities are found thereabout; to which I have this to reply, that neither are there at *Penkridg*, either where it now ſtands, or where it ſtood anciently, on the other ſide the *River*, further off the *ſtreet way*. Upon the *Ickenild*

[n] *Camdens Britannia in Staffordſh.* [o] *Antonini Itinerar. Britan. Secundum Ald. Manutium. Conf. Simlerum. Jerom. Suritam.*

ſtreet there are none of theſe *military ſtations* mention'd by *Antonine*, yet doubtleſs there were ſuch, tho' not mentiond in the *Tables*, theſe ways being raiſed for avoiding the trouble and danger of *marching* in ſtrange *Countries*, and the *Manſions* ſetled on them at convenient diſtances, for the ſafe repoſe of their *Armies* at night: whereof 'tis like *Streethey* near *Lichfield* was one: and *Streeton* near *Burton* another; theſe two being near as farr diſtant on the *Ickenild*, as *Wall* and *Streeton* on the *Watlingſtreet*.

17. I know that the Reverend Dr *Fulk* of *Cambridg* makes the tenth journey of *Antonine*, *à Glamoventa Mediolano*, to paſs through this *County*, as may plainly be ſeen in the ſecond Edition of the ſaid *Itinerary* by *William Harriſon*, which he makes run *Northweſtward* from *Coventry*, which he ſays is the old *Alone*, to *Galacum* which he makes *Lichfield*, and thence to *Bremetonacis* which he ſays was *Trentham*, and ſo to *Coccium* or *Congleton* in *Cheſhire*[p]: but there appearing no footſteps (that I can remember) of *this*, he muſt pardon me if I doe not ſubſcribe to his opinion, till better informed. Beſide theſe *Baſilical* or *Conſular* ways there were others of like erection, tho' leſs extent, call'd *Vicinales*, *quod in vicos ducebant*; whereof I ſcarce met with any in this *County*: unleſs I may take leave to account the high paved way at *Wootton* near *Eccleſhall* a part of one of theſe, which ſeems not to have been made by reaſon of any wet or dirty way, it being raiſed between two other deep ways, which lye dry enough too. Alſo at *Edingal* in this *County*, about a mile *E NE* of the *Towne*, there remains a part of ſuch a rais'd way, pointing toward *Lullington* in *Darbyſhire*, but whether it ſhould tend after, I cannot imagin, unleſs to the old town of *Repandune* now *Repton*, ſo famous for the burial of the *Mercian* Kings.

18. Near this way at *Edingal* there alſo yet remains a *barrow* or *Low*, ſuch as were uſually caſt up over the bodies of eminent *Captains*, or other *Commanders* in the warrs, and commonly placed by the *Romans* by their *military ways*, for the reaſons alleged in the *Hiſtory* of *Oxfordſhire*, whither I referr the *Reader* for the general account of them[q]; in particular I take this to be a *Roman* barrow, becauſe thus placed near a *ſtreet way*; and ſo perhaps the great *tumulus* on the *Watlingſtreet* near *Hynts*, tho' now a Rock of ſtone, it being poſſible that a heap of *earth* as bigg as that, may in proceſs of time be turned into *Stone*, as

[p] *See Burtons Commentary on Antonines Itinerary, in the 2 Edition of that Itinerary by Will. Harriſon.* [q] *N. Hiſt. of Oxfordſh. Chap.* 10. *from* §. 40. *to* §. 48.

hall

ſhall be ſhewen hereafter*; ſo the barrow call'd *Carts-hill*; alſo near the *Watlingſtreet*, about mid-way betwixt the *Shire-Oaks* and *Frog-hall*; and ſo the two *Lows* on *Calves-heath*, near the road ſide that leads from *Sommerford* to 4 *Croſſes*; to which add another in ſome incloſed grounds *Eaſt* of great *Sarden*. But the moſt eminent of any upon this way, is that near *Swinfen* call'd *Offlow*, which tho' placed very near it, yet for the name ſake, I dare not reckon amongſt the *Roman lows*, it being no queſtion the burial place of ſome eminent *Saxon*, of whom more anon. Neither muſt the *tumulus* upon the *Ickenildſtreet* near *Queiſlet* in this *County*, call'd *Kingsſtanding*, be number'd amongſt theſe, neither of them owning their riſe to the *Romans*, as ſhall be ſhewn hereafter.

19. But their being placed on *Streetways*, is not the only ſigne of *Roman tumuli*: for where we find *Roman mony*, or any of their *inſtruments* of warr within or near them, we have alſo reaſon to judg them caſt up by the *Romans*, tho' remote from any of their *Conſular ways*: for which reaſon I ſhall reckon the *Low* near *Buſhbury* of *Roman* erection, a braſs head of the *bolt* of a *Catapulta* having been found in a wood of that *pariſh* call'd the *burchen Leſow*; another of this kind was alſo found near *Fetherſtone*, but in the pariſh of *Brewood* by Mr *John Huntbach* in a ground call'd the *Laches*, and by him preſented to Sr *William Dugdale*; a third in the biggeſt of the three *Lows* of *Morridg*; and a fourth at *Handſworth*, all of *braſs*, and well enough repreſented by that one draught, *Tab.* 33. *Fig.* 5. Which having the ſhape of a ſmall *Axe*, without any *Eye* for a *helve* to paſs through it, made all people wonder what uſe it could be off: little imagining it could be any thing of the nature of a *bolt*: the exact figure whereof I find engraven in the *Muſæum Moſcardi*, the wooden ſtemm being to be fitted into the *hollows* of each ſide it, the edg being placed formoſt for *execution*, and there declared to have been for that uſe[t]. Upon which account I ſay I cannot but determin that at *Buſhbury*, and thoſe *three* upon the *Morridg*, to be *Roman Lows*; it being plain by theſe *inſtruments* that all thoſe places, as well where *Lows*, as not, were ſometime viſited by the *Roman militia*, and places of ſome action.

20. And ſo for the ſame reaſon the pariſh of *Ilam*, where was found near the ſpring call'd St *Bertram's* well, an inſtrument of *braſs*, ſomewhat like (only larger than) a *Lath-hammer* at the edg end, but not ſo on the other, the forme whereof is

* *Vid.* §. 34. *infra.* [t] *Muſæi Lud. Moſcardi. Lib.* 3. *cap.* 174.

here expreſt *Tab.* 33. *Fig.* 6. which I take to have been the head of a Roman *Securis* with which the *Popæ* ſlew their *Sacrifices*, notwithſtanding it have no *Eye* for the *manubrium* to paſs through, the *Securis* it ſelf being ſometimes only ſtuck through it, as may be ſeen at many places amongſt the *Roman antiquities* of *Bartolus* and *Bellorius*[s]. The ſmall braſs inſtrument ſent me by the Worſhipfull *Charles Cotton* Eſq; found ſomewhere near him, here repreſented *Fig.* 7. argues alſo that the *Roman* armes were advanced even into the *Northern* parts, it ſeeming to have been the head of a *Roman reſt*, uſed to ſupport the *Lituus*, not that crooked ſtaff uſed by the *Augurs* in their *divinations*, to point out the quarters of the heavens; but the *Trombe-torte*, crooked Trumpet or horne-pipe uſed in the *Roman* armies, as may be ſeen in *Choul's* diſcourſe of the *Caſtrametation* of the *Romans*[t]. And from the braſs head of the *Roman Venabulum* or hunting ſpear, found ſomewhere betwixt *Tarlet* and the foot of *Pyrehill*, which is here likewiſe engraven *Fig.* 8. one may probably conclude that the *Romans* had at laſt ſome reſidence here, with leaſure to follow ſuch ſports, as the *Country* would afford.

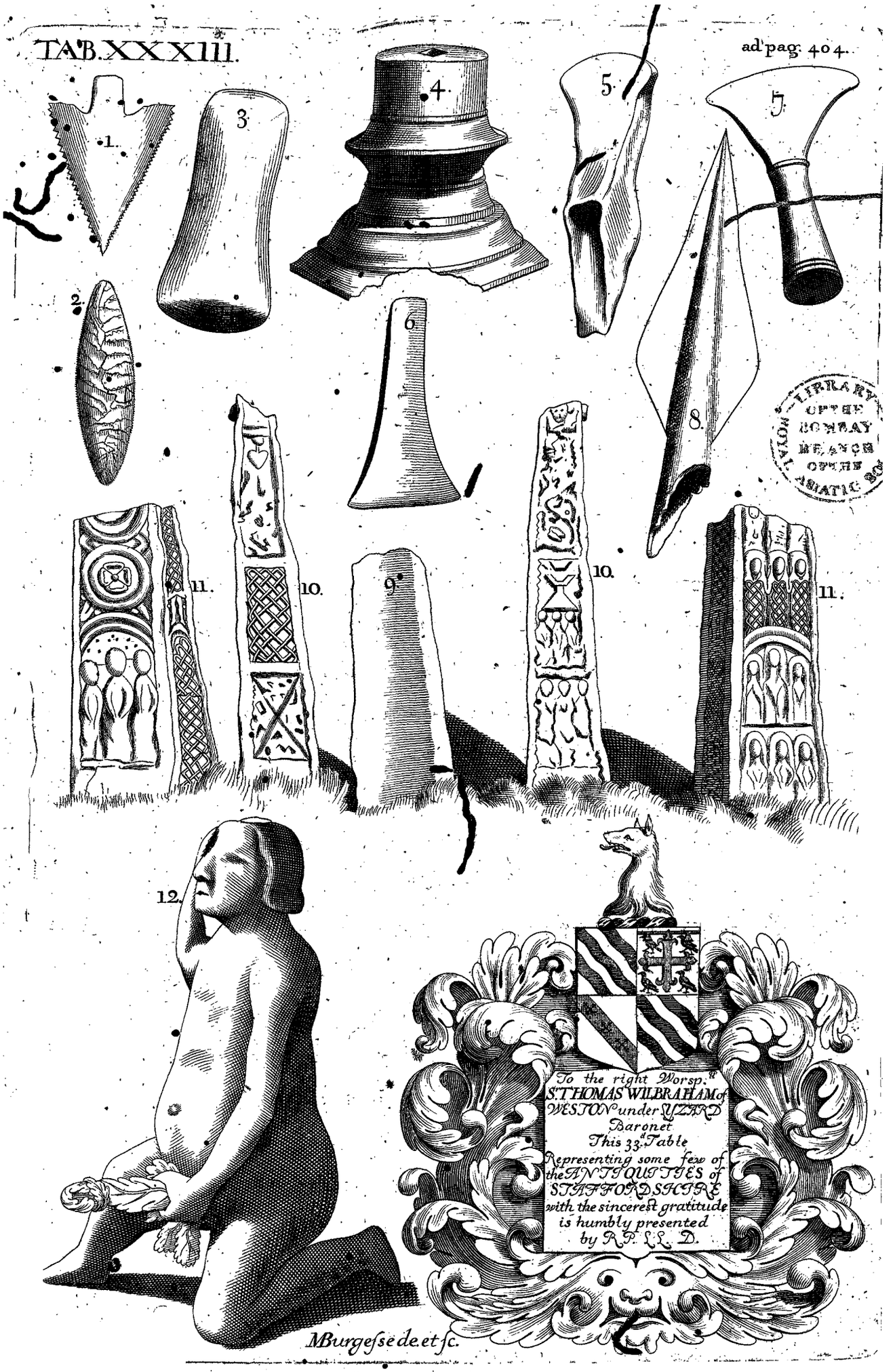
21. Whence it may reaſonably be concluded, as alſo from ſome *Roman* mony that has been ſometimes found in *Dale-cloſe* twixt *Okeover* and *Mathfield*, and a *Roman* Urn dugg about 10 years agoe out of a bank in *Church-towne* field in upper *Mathfield*, &c. that the *Lows* hereabout, may for the moſt part at leſt be eſteemed *Roman*: particularly *Harlow-greave* a little mile *NW.* of *Mathfield*; and that other in a field near the left hand the way, as you paſs between *Mathfield* and *Ellaſton* near *Colwich-common*, without name; and another larger over againſt it, at the other end of the *common*, which they call *Rowlow*, perhaps the *Sepulcher* of ſome petty *King*, *Rowlow* importing as much as *Regale Sepulchrum*. To theſe add the *Low* in *Arbour-cloſe*, 2 or 3 bows ſhoot *North-weſterly* from *Okeover* Chappel; the 3 Lows upon the *Weever-hills*; and 3 others they call *Queen-Low*, *Gallows knoll*, and *Caſtlow-croſs*; together with the *Lows* on *Ribden*, *Reeden*, and *Cauldon* hills; and ſo *Cocklow* and the reſt near the town of *Leek*; thoſe on the hills neat *Warſlow*; on *Ecton* hill; and another on a hill that is a Cow-paſture betwixt *that* and *Oncot*: moſt of which upon examination, as well as thoſe on the *Morridg*, have been found made of *ſtones*, and not *gravel* or *earth*, as uſually elſewhere; which

[s] *Vid. admiranda Romanar. Antiquitatum veſtigia, per Joh. Petr. Bellorium & Petr. Sanct. Bartolum.* [t] *Diſcorſo ſopra la Caſtra metatione di Romani per il. S. Guglielmo Choul.*

Tet

TAB. XXXIII.

ad pag. 404.



ROYAL ASIATIC SOCIETY LIBRARY OF THE BOMBAY BRANCH

To the right Worsp.ll
S.T THOMAS WILBRAHAM of
WESTON under LIZARD
Baronet
This 33.d Table
Representing some few of
the ANTIQUITIES of
STAFFORDSHIRE
with the sincerest gratitude
is humbly presented
by R. P. L. L. D.

M Burgesse de. et sc.

yet muſt not be wonder'd at, becauſe we find they were made alſo in other *Countries* of ſuch *materials* as the places beſt afforded; particularly *ex lapidibus in ſaxoſis locis* *, ſuch as theſe are.

22. The *Lows* near *Elford* and *Wiginton* in this *County*, muſt alſo be reckoned amongſt the *Roman tumuli*: for the *former* of theſe being opened at my inſtance *Octob.* 7 and 8. *An. Dom.* 1680. at the charge of the generous Madam *Bows* of *Elford*, there was found, in it level with the ſurface of the ground about it, a moiſt *blackiſh* ſort of *earth* without any mixture of gravel or ſtones, about 2 yards *diameter*, and a foot and half deep in the middle, lyeing much in the ſame form with the *tumulus* it ſelf, on the edg whereof, were *Aſhes* and *Charcoal* in their true colours, and ſeveral pieces of *bones* in the middle of it, ſo friable that they would crumble betwixt the fingers: the Low it ſelf which coverd theſe *Aſhes* and *black earth*, being made of gravel mixt with pebbles, as the ſoil it ſelf thereabout is, and ſo it was alſo under the ſaid *black earth*. Whence it could not but be concluded that this *tumulus* muſt needs be *Roman* (tho' there were no *coynes*, pieces of *Urns*, or *Armour* found in it) the bodies buryed under it having been certainly *burnt*, which I do not find either the *Saxons* or *Danes* ever did after their arrival here, whatever they might before. Otherwiſe I ſhould have thought they might have been caſt up, about the year 755, when *Ethelbald* King of *Mercia* being invaded by *Cuthred* King of the *Weſt Saxons*; met and fought him at *Segeſwald* [u], *Sacchenda* [w], or *Secandune* [x], now *Sekindon* in *Warwickſh.* yet hard by; where the proud King *Ethelbald*, *in arto poſitus* as *Brompton* tells us [y] (which perhaps ſhould be *in arcto*) diſdaining to fly was ſlain by *Beornred* one of his own *Commanders* (as we are inform'd by *Malmesbury* [z]) and his whole Army broken: for tho' the *King* did not (who was buryed at *Repton*) ſome of the *Nobles* notwithſtanding might perhaps have ſought to ſave themſelves by a ſwift flight, yet have been ſlain in the purſuit, and buryed under theſe *Lows* here at *Elford* and *Wiginton*.

23. Now the reaſon why ſuch *Lows*, and *warlike inſtruments*, certainly *Roman*, are ſo often found remote from their *military ways*, was I ſuppoſe that the *Natives* drew them frequently off, and ſkirmiſh'd with them any where, as occaſion preſented:

* *Ol. Wormii Monument. Danicorum. Lib.* 1. *cap.* 7. [u] *Florent. Wigorn. Chron. ex Chron. in An.* 755. [w] *Matth. Weſtmonaſt. Flor. Hiſtoriar. in eodem An.* [x] *Joh. Brompton Abb. Jornal. in vita Ethelbaldi.* [y] *Ibidem.* [z] *Will. Malmesburienſis de geſtis Regum Ang. Lib.* 1. *cap.* 4.

upon which account too we find the *Romans*, to have pitch't their *tents* in places farr diſtant from their *ways*, as one may plainly perceive by the *Valla* that went round them, which; as *Polybius* and *Vegetius* both teach us, being often made *ſquare*[a], eſpecially, ſays *Stewechius*, when they would have their armies appear great[b]; I have reaſon to ſuſpect that *entrenchment* near the bridg upon *Aſhwood* heath, in the pariſh of *Kings-Swinford*, commonly known by the name of *Wolverhampton* Church-yard, which meaſures about 140 paces over, has been one of theſe *Roman Caſtrametations*. And ſo I am willing to beleive thoſe remains of a *fortification* at the *Eaſt* end of *Longdon* Church, which 'tis plain were alſo ſquare, the *Eaſt* and *South* ſides being ſtill apparent; not being able after a long and diligent ſearch, to give a better account of either of them. Tho' it muſt not be denyed that the *Saxons* alſo *fortified* in a *ſquare* form, as may be ſeen at *Tamworth* and divers other places, of which in due time, ſo that I muſt deſire the *Reader* to take ſpecial notice, that I am not ſo poſitive, but I can yeild it poſſible they may be *Saxon* notwithſtanding, caſt up upon the frequent incurſions of *Canutus*, or the neighbouring *Saxons* into the *Mercian* Kingdom, of which more anon: only I think that had they been made ſo *late*, we ſhould have had ſome account of them, whereof becauſe none, I have choſe rather to place them in *remoter* times. However they give me a fair tranſition.

24. To the *Saxon antiquities*, amongſt which firſt of ſuch as relate to the *Heptarchy*, in treating whereof I ſhall obſerve as near as may be the order of time, and therefore muſt begin with the Hiſtory of *Berry-bank* (as they call it) near the village of *Darlaſton* in the pariſh of *Stone*, where on the top of a hill there yet remain the ruins of a large *Caſtle* fortifyed with a double *vallum* and *entrenchments* about 250 yards *diameter*, the *gate* ſeeming to have been on the *weſt* part of it, where the ſide banks on each hand yet plainly appear: others fancy there was a ſecond *gate* on the *Eaſt* ſide too, tho' I could not perceive any probability for it: but on the *South* ſide there is a round conical hill, much like a *tumulus*, caſt up higher than all the reſt of the *work*. Which according to the tradition of the *Country* thereabout, was the Seat of *Wlferus* King of *Mercia*, who murthered his two *Sons* for embracing *Chriſtianity*, one at *Stone* hard by, and the other at *Burſton* but a little fur-

[a] *Polybii Hiſtoriarum Lib.* 6. *de Caſtrametatione. & Flav. Vegetii de re militari Lib.* 1. *cap.* 23. [b] *Godef. Stewechii Comment. in Lib.* 1. *cap.* 23. *Flav. Vegetii de re militar.*

ther,

ther off: but I doe not ſo much depend upon that, as on what Mr. *Sampſon Erdeſwic* aſſerts, *viz.* that he had ſeen an old *writing* relating to the foundation of the *Priory* of *Stone* that affirms as much[c]: which perhaps may be that of *R. de Suggenhill* and *Petronil* his wife, whereby they gave to the Church of St *Mary* and St *Wlfade* of *Stone*, *Meſſuagium juxta montem qui dicitur* Wlfereceſter *in territorio de* Derlaſton[d], which indeed proves fully that this was the royal manſion of the ſaid *Wlferus*, who governd *Mercia* from the year of Chriſt 657 to 676, the *Low* adjoyning in all probability being the place of his *ſepulture*.

25. Within the limits of whoſe raigne fall the dates of the foundations as well of *Lichfield* as *Stone*: for tho' the place where *Lichfield* now is, were enobled with the *martyrdoms* of a 1000 *Chriſtians*, near 400 years before, yet we hear nothing more of it till *Oſwy* King of *Northumberland*, having beaten and kill'd *Penda* King of the *Mercians*, converted the *Country* to *Chriſtianity*, and after a while made this place (perhaps in memory of theſe *Martyrs*) a *Biſhops* ſeat, building a Church and nominating one *Duina* a *Scotchman* the firſt *Biſhop* of it[e]: which yet 'tis like might be a place but of ſmall account (many of the *Biſhops* ſeats in ancient times being ſmall villages) till after the time of St *Ceadda*, who as *Roſſus Warwicenſis* plainly tells us, came at firſt hither as into a private place, *in ſecretum locum Staffordienſis provinciæ* (tho' now a *Biſhops* ſeat) where he lived (as the *Legend* ſays) only upon the milk of a *Doe*, which being hunted by *Wlfade* ſon of *Wlfere* King of *Mercia* brought him to the Cell of St *Ceadda*, who firſt converted him to the Chriſtian faith, and his brother *Ruffine* after[f], whilſt he lived as it were a *Hermitical* life, by a Spring ſide yet remaining by the Church of *Stow*, near the City of *Lichfied*: which being too remote from *Wlferceſter* the Seat of their Father, they intreated the holy man to remove a little nearer them, for the eaſier waiting on him to receive further inſtruction, and performing their devotions together with him[g].

26. To which requeſt of the young *Princes* I find the holy St *Ceadda* readily complyed, and came to another *Secret place* not farr off them, whither under pretence of *hunting*, to avoid their fathers anger who was yet a *Pagan*, they conſtantly came to him and were inſtructed accordingly: but being obſerved by

[c] *Erdeſwick's view of Staffordſh. in Darlaſton.* [d] *D. Gul. Dugdali Monaſt. Anglican. vol. 2. p. 129.* [e] *Matth. Weſtmonaſterienſ. Flor. Hiſtoriarum in An. 655, 656, 657.* [f] *Ex Libro Johannis Ruſi. M. S. de Epiſc. Wigorn.* [g] *D. Gul. Dugdali Monaſt. Angl. Vol. 1. p. 122.*

one

one *Werebod* one of their fathers evill *Councellors*, they were quickly found out and accuſed of *Chriſtianity* to him, who came from *Wlferceſter* above mention'd, and finding them at their devotions in this new *Oratory*, in the midſt of his wrath ſlew them both[h]; one, at *Stone*, where a Church being erected over the place of his *Martyrdom*, gave both name and original to that town; and the other at *Burſton* where there was erected a Chappel which as Mr *Erdeſwic* aſſerts was but lately ſtanding[i]. In this conjuncture St *Ceadda* fled away from the fury of the bloody minded King, and returned to his *Cell* near *Lichfield* again, where he had not retired long, but King *Wlfer* was grievouſly ſtruck with remorſe, and being ſore afflicted for the fact he had done, according to the councill of his Queen *Ermenilda*, repaired to St *Ceadda*, by whom he was converted, and forthwith baniſhed all idolatrous worſhip out of his *dominions*[k]; and upon the death of *Jarumannus* which happened quickly after *An.* 667, made the holy St *Ceadda* Biſhop of *Lichfield*, from whom it receiv'd ſo great honour, that it increaſed quickly after to a conſiderable *Town*, and was not long, before advanced to a *Metropolitical* See, by the great King *Offa*, who out of ſpight to *Lambert* ArchBiſhop of *Canterbury*, got it exempt from his juriſdiction, obtaining a *pall* for it of Pope *Adrian* the firſt: the *Sees* of *Worceſter*, *Cheſter*, *Sidnaceſter*, *Hereford*, *Helmham* and *Dorcheſter*, being made ſubject to it: in which ſtate it continued from the year 766 to 797, in all 31 years, in which time there ſate three Arch-Biſhops of *Lichfield*, *Ealdulfus*, *Humbertus*, and laſtly *Higbertus*, in whoſe time the See of *Canterbury* was reſtored again to its priſtin dignity by *Kinulf* or *Kenwolf* alſo King of the *Mercians*[l].

27. The next *Antiquities*, that follow in order of time, of *Saxon* original, are *Dudley Caſtle* built upon a lofty hill, and ſo named by one *Dudo* an Engliſh *Saxon* about the year of our Salvation 700 *. the preſent proſpect whereof was repreſented above *Tab.* 3. *ad pag.* 39. and an old fortification in the pariſh of *Mear* or *Mere*, that they call the *Bruff* (which perhaps may be only a corruption of *Burgh*) fenced at ſome places with a double *trench* and *rampire*, the *agger* above the *trench* ſeeming at ſome places to have been made up with *ſtone*, the whole being of a very irregular form, according as the figure of the hill would admitt: over againſt this, on the heath, there is a place they call *Camp-hills*, where it is ſuppoſed there was an-

[h] *Ibidem. pag.* 122, 123. [i] *Erdeſwick's view of Staffordſh. in Burweſton.* [k] *D. Gul. Dugdali Monaſt. Angl. locis ſupra citat.* [l] *Matth. Weſtmonaſt. Flor. Hiſtoriar. in An.* 766. 794. 795. 797. * *Camden's Britannia in Staffordſh.*

ently

ciently likewiſe a *Camp*, tho' no ſignes of it now; only there are two round hills which may paſs for *barrows*, and many other longiſh hillocks like graves, in which form I find theſe *Sepulchral monuments* were alſo ſometimes made[m]: betwixt which and the *Bruff* there is likewiſe a large round conical hill that they call *Coplow*, which no doubt was the *Sepulchre* of ſome conſiderable *Commander* ſlain here about, when theſe rampires were made and uſed. Which tho' at firſt ſight they appear'd difficult to account for, *who?* & *when?* being very hard *queſtions* at this diſtance of time: yet I think I may ſafely, and with ſome confidence anſwer, that this fortification was here made in the days of the wicked *Oſrid* King of *Northumberland*, about the year of Chriſt 705, who as *Henry Huntingdon* teſtifies was ſlain at *Mere*; *Oſrid vero Rex belli infortunio juxta* Mere *pugnans interfectus eſt*, being his very words[n]: tho' he tells us not by what enemy, nor upon what occaſion, yet I ſuppoſe it muſt be *Kenred* King of *Mercia*, whom he ſeems to have invaded, and not his Coſin *Kenred* who ſucceeded him, as S. *Creſſy* would have it[o], there being no foundation that I can find in *Hiſtory*, for ſuch an imagination: *Cop-low* being the *tumulus* in all probability under which the unfortunate *Oſrid* was buryed, and thoſe other *lows* and *hillocks* upon *Camp-hills* of his inferiour officers: and the *Bruff* the Caſtle or ſtrong hold, that *Kenred* had rais'd againſt him.

28. About this time the place or *Iſland* where the Town of *Stafford* now ſtands, anciently call'd *Bethnei* (what was ſaid of it before being only propheſy) began firſt to be inhabited, by St *Bertelline* the ſon of a King of this Country, and Scholar to Sr *Guthlac*, with whom he tarryed till his death: after which, tho' now unknown to his Father, he begg'd this *Iſland* of him, where he led a *Hermits* life for divers years, till diſturbed by ſome that envyed his happineſs, when he removed into ſome deſert mountanous places, where he ended his life[p]; leaving *Bethnei* to others, who afterwards built it, and called it *Stafford*, there being a ſhallow place in the River hereabout, that could eaſily be paſs't with the help of a *Staff* only[q]. Now whereabout this deſart place ſhould be, that St *Bertelline* went to, tho' *Hiſtories* are ſilent, yet I have ſome grounds to think that it might be about *Throwley*, *Ilam*, and *Dovedale*: and that this was the St *Bertram* who has a *well*, an *Aſh*, and a *Tomb* at *Ilam*: for if as *Capgrave* ſays, the Town of *Bertamly* in *Cheſhire* took its name from a

[m] *Ol. Wormii Monument. Danicor. Lib.* 1. *cap.* 7. [n] *Hen. Huntindonienſis Hiſtoriar. Lib.* 4. *cap.* 4. [o] *S. Creſſy's Church. Hiſt. of Britan. Book.* 21. *chap.* 26. [p] *Jo. Capgravii nova Legend. Angl. in vita S. Bertellini* [q] *Gul. Somneri Dictionar Sax. Lat. Angl. in verbo,*

miracle that St *Bertelline* did there[r], I know not why the people about *Ilam*, *Throwley*, &c. might not corrupt his name as much as they in *Cheſhire*, and call him St *Bertram* inſtead of St *Bertelline*. If it be objected that the *Tomb* here is of too late a date for his time, it ſeeming by no means above 300 years old; I muſt own the thing: but then it muſt be allowed that ſuch great mens *Tombs* were often rebuilt, eſpecially if any great occaſion were adminiſter'd, as there was by this *Saint* about that time *viz.* *An.* 1386. when there was a wonderfull miracle wrought at his *Altar* in *Stafford*, if we may beleive *Capgrave*[s]; which might poſſibly give occaſion for the rebuilding of it by the people of *Stafford* in the form it now ſtands.

29. Near *Alveton* in this *County* upon a lofty ſituation, in the lands of the right Honorable *Charles* Earl of *Shrewsbury*, a moſt noble *encourager* of this *work*, there ſtill remains, near the *Lodg*, juſt ſuch another *fortreſs*, as that near *Mear*, only much larger, which they call *Bunbury*, of no regular figure, encompaſſed with a double and ſometimes treble *trench*, according as the natural ſituation of the place, ſeems to have required, on the *North*, *NW*, and *NE* ſides, all the reſt being naturally inacceſſible, the whole including about an hundred *acres:* which I doubt not to have been made by *Ceolred* King of *Mercia*, the ſucceſſor of *Kenred* abovementioned, when he was invaded (in likemanner as *Kenred* by *Oſrid*) in the ſeventh year of his raigne, by the potent *Ina* King of the *Weſt-Saxons*, in the year of *Chriſt* 716. *Cujus anno ſeptimo* Ina *Rex* Weſt-Saxiæ, *magno Exercitu congregato contra* Eum *apud* Bonebury *ſtrenue præliavit.* i. e. that in the ſeventh year of *Ceolreds* raigne, *Ina* King of the *Weſt-Saxons* having rais'd a great Army fought him ſtoutly at *Bonebury* ſays the Abbot of *Jourvall*[t]: where yet *Ceolred* (by the advantage of this his ſtrong *fortification*) ſo warmly received him, that he was glad to withdraw upon equal termes, neither having much reaſon to bragg of a victory.

30. Of what antiquity the Town of *Tamworth* may be, does not plainly appear, but it muſt certainly have been a place of ſome repute of very ancient times, tho' we hear nothing of it till *An. Dom.* 781. when the great King *Offa* granting lands in *Sapie* to the *Monks* of *Worceſter* concludes thus —— *Hanc autem præſcriptam viciſſitudinem terrarum & meæ donationis pro domino libertatem, ego* Offa *Rex ſedens in Regali palatio in* Tamoworthige *ſecundo die nativitatis Domini, concedens donavi An.* 781. And after him *Ceonulf* whoſe *Charter* ends thus —— *Acta eſt hæc-*

[r] *Nova legenda Angliæ loco ſupra citat.* [s] *Ibidem in fine.* [t] *Joh. Brompton Abb. Jornallenſ. in Regno Merciorum.*

donatio

donatio An. 816. *in vico celeberrimo qui vocatur* Tomoworthig, &c[u]. Now if the *Mercian* Kings had their *Palaces* here so very early, it must needs have been a Town of some repute long before, and perhaps a *fortify'd* place; there still remaining a square trench call'd *Kings-ditch* of large extent, that in a manner encompasses the whole town, beginning on the bank of the River *Tame* west of the *Lady-bridg*, and running up thence in a straight line till it comes *NW* of the Church, where there seems to have been a *mount* or a *bastion* somewhat higher than the rest of the work, in the angle where it joyns to the following line; which runns straight all along *N* of the Church till it comes *NE* of it, where another *mount* also in the angle; whence it runns again in a straight line to the banks of the *Anker*; inclosing the town on the *West*, *North*, and *East*; the Rivers securing it *Southward*: but whether these were made, before, after, or in the days of King *Offa*, is not easy to determine.

31. Next *Tamworth* the most ancient place of any in the *County*, whereof there are any footsteps yet remaining, perhaps may be a large old fortification near the village of *Billington* in the parish of *Brädeley*, 300 yards diameter doubly entrenched, as may be seen at divers places, tho' the outmost indeed be fill'd up in some: which I could willingly beleive to have been the place of battle, between Duke *Wada* and the rest of the murtherers of King *Ethelred*, and King *Eardulf* his successor; which *Matthew* of *Westminster*[w], *Roger Hoveden*[x], and *Simeon Dunelmensis*[y] all agree, was at a place call'd *Billingaho* or *Billingahoth juxta Wallalega An. Dom.* 798. the old *Etocetum*, by the *Saxons* call'd *Wall*, not being farr off: but that it is hard to think that a King of *Northumberland* or any *Conspirators* against him, should bring a warr so farr out of their own *Country*; or that the valiant *Kenulf* then *King* of the *Mercians* would admitt of it, unless it were done in his absence, when he went into *Kent* against *Eadbert Pren*, whom he overthrew, and brought away captive[z]. Wherefore I shall take leave anon to make another *conjecture*, concerning the original of this *fortification*: and in the mean time proceed to the *life*, *martyrdom*, and *buryal*, of the young S[t] *Kenelm King* of the *Mercians*, the *Scene* whereof seems to have layn in this *County*, of which in their order. Yet I shall relate no more than what is absolutely necessary to understand the remains that I find of *them* here.

[u] *Sr William Dugdale's antiquities of Warwickſh. illustrated. p.* 816, 817. [w] *Matth. Westmonasterienſ. Flor. Historiar. in An.* 798. [x] *Rog. de Hoveden Annalium parte priori. p.* 233. [y] *Sim. Dunelmenſ. Hist. de gestis Reg. Ang. in An.* 798. [z] *Mat. Westmonast. loco supra citat.*

32. Let it therefore ſuffice that upon the death of *King Kenulf. An. Dom.* 819. the Kingdom of the *Mercians* fell to his only Son *Kenelm* a child of 7 years old, whoſe elder Siſter *Quendred* deſirous of rule, practiſed with the young Kings guardian, one *Aſchebert*, to make him away, as in the Hiſtories of his life written by *Matthew* of *Weſtminſter*[a], *John Brompton*[b], and *Capgrave*[c], where the *Reader* if he pleaſe may ſee the particulars: which that he might doe the more ſecretly, he had the young King into *Clent wood* in this *Country*, under the fair pretenſe of taking pleaſure in hunting, and when he had gotten him into a ſuitable place, he cut off his head, and buryed him where no man knew but himſelf, till diſcovered by a certain *Cow* of a widdow woman, that would feed no where but beſide St *Kenelms* grave; and a *Scrole* dropt by a white *Dove* upon the altar of St *Peter* at Rome, as Pope *Leo minor* or *Leo* the *third* was celebrating *Maſs*, containing theſe words: In Clent kau hathe Kenelin kinebearn lieth under thorn heaved by reaved: which none of the *Romans* underſtanding, it was ſhewed to the people of the ſeveral *nations*, amongſt which an *Engliſh-man* there preſent, rendered it into *Latin*, which the *Poets* of after ages put into this *diſtick*.

In Clenc *ſub ſpina, jacet in convalle bovina,*
Vertice privatus, Kenelmus *rege creatus*[d].

Engliſhed thus

In Clent *in Cow-bach under a Thorn*
Lyes King Kenelm *his head off ſhorne*[e].

by which means it being underſtood at *Rome* (as ſome ſay before it was in *Britan*) how he was murthered and where buryed, order was preſently ſent by the Pope to *Wolfred* then Arch-Biſhop of *Canterbury*, and the reſt of the Engliſh *Biſhops* to ſearch and take up his *body*, which was accordingly done and carryed in great ſtate to the *Abby* of *Winchelcomb* in *Gloceſterſhire* of his *Fathers* foundation, and there honorably buryed.

33. Now the *antiquities* that I find yet remaining upon the place relating to this *Hiſtory*, are firſt, *Cowbach* otherwiſe *Cowdale* as *Brompton* calls it[f], ſo named from the *Cow* that attended his grave, which remains a *paſture-ground* to this very day, being ſituate in a *valley*, under *Warton* hill, about half a mile N E of *Clent* Church, as moſt of the ancient men of the town agreed; there being now no *thorn*, nor had there been

[a] *Idem in An.* 821. [b] *Joh. Brompton Abb. Jorn. in Regno Merciorum.* [c] *Joh. Capgravii nova Legenda Angl. in vita S^ti. Kenelmi.* [d] *Matth. Weſtmonaſt. Flor. Hiſtoriar. loco ſupra citat.* [e] *Erdeſwicks view of Staffordſh. in Clent.* [f] *Loco ſupra citato.*

any

any that I could learn, within memory; ſo that the exact place where he was buryed is now unknown: nor is there any Spring here, which as the *Legend* ſays immediatly guſh't out where the body had layne, as ſoon a 'twas taken forth[g]; St *Kenelm's* well being ½ a mile off, near the *Chapell* yet ſtanding dedicated to him, in the pariſh of *Hales-Owen* and *County* of *Salop*; and not in the pariſh of *Clent* or *County* of *Stafford*; ſo that whether this be the true *Cow-bach* or noe, the *Legend* muſt be falſe: unleſs we ſhall ſay that the precincts of *Clent* are contracted ſince, and that the true *Cowbach* was, where the ſpring now is, in the *County* of *Salop*: which if ſo, I have ſaid to much of it already, it being without the *pale* of this *Hiſtory*. However half a mile *NNE* of *Clent* Church or there about, there is a *liſt* of *graſs* greener than ordinary, call'd St *Kenelms-furrow* running up to the *Knoll-hill* a great length, that ſtill remains both in the *pariſh* and *County*, the graſs whereof indeed is ſomewhat more verdant and luxuriant than at other places, which they intend for the *furrow* made by the *Oxen*, which run away with the womans plow, and were never again heard of, who in contempt of the feaſt of St *Kenelm* would make them work on that day, looſing her Eyes into the bargain, as the *Legend* ſays[h], but enough of this. I found alſo 3 *Lows* on *Clent-heath*, but theſe relate nothing to our former hiſtory, being raiſed as I gueſs on ſome *conflict* hereabout, when the *fortifications* were made on *Whichbury-hill*, not farr off them, but in the pariſh of *Pedmoore* and County of *Worceſter*, which being *extra oleas*, I am not concern'd either when, or by whom they were made.

34. Beſide theſe, there are other *Antiquities* here that may be preſumed to be *Saxon*, tho' there can be no particular account given of them, as there has of the former. Such as the old fortification on *Kinfare* edge of an oblong ſquare figure, about 300 yards long, and 200 over, having an artificial *bank* caſt up round it, fenced with a deep *ditch* on the *NNE* and *SSW* ſides; the *edg* or *hill* on the other two ſides being naturally inacceſſible. Concerning which the tradition of the *town* is, that it was a *Daniſh* fortification: but the name ſeeming rather to make it a *Saxon* one, where ſome *King* was kill'd from cyne *Regium* and ranan *nutare*, *vacillare* or *obire*[i], importing as much as a *royal failure* or place where a *King* had fail'd or dyed, I have rather choſen to place it among the *Saxon antiquities*. Upon this account too I am inclined to beleive, the *Lows* on the *heath* underneath betwixt *it* and the *Comptons* are alſo *Saxon*;

[g] *Locis ſupra citatis.* [h] *Joh. Capgravii nova Legenda Angl. in vita* S^ti *Kenelmi.*
[i] *Vid. Gul Somneri Dictionar. Saxonico-Lat. Angl. in verbis.*

xon; and ſo that at the end of *Kinſare* heath, near the Lane leading to *Enfield*; there ſeems alſo to be another under *Meg a fox-hole*; which tho' now all ſtone, may poſſibly have been formerly *earth*, now turn'd into *ſtone* by ſubterraneal heats; eſpecially if that be true which is aſſerted from experiment by *Gabriel Plat*, viz. that if you half fill a *Retort* with *brimſtone*, *Sea-coale*, and other *bituminous* ſubſtances, and the remainder of the *neck* alſo half way with *pure earth*, and ſet it to diſtill with a temperate open fire, the *earth* will be *petrifyed* or turned to *ſtone*[k]; as it is alſo by *nature*, where *bituminous* ſubſtances kindled in the bowells of the earth, ſend up ſuch *vapours*, as perhaps they may have done alſo at *Barrow-hill* in the pariſh of *Kings-Swinford*, where there are two uniforme *barrows* all *rock*; and ſo at the *rocky* round hill on the *Watlingſtreet* near *Hynts*.

35. There are many other *Lows* too, not placed upon any of the *military ways* or old *fortifications*, whereof no ſuch particular account can be given, as there was of the former, which yet ſeem to have been of *Saxon* erection, but theſe upon a *civil*, not *military* ſcore: for they oft raiſed ſuch *Lows* over conſiderable men that dyed in *peace*, as well as in *warr*; but then they placed them *in Campo plano juxta defuncti prædium ſito*[l], ſomewhere in a plain beſide the Manſion of the deceaſed. And of this kind I judg that at *Stramſhall* in this *County*; and that other in a place call'd *Low-field* about a quarter of a mile *Weſt* from *Combridg*; amongſt theſe we may alſo reckon that at *Tatenhill wood-Lane*, about half a mile *weſtward* of *Callingſwood* hall, ſuppoſed to be *Rudlow*, of which more anon; and ſo *Totmonſlow* tho' now not extant; as well as *Offlow*, which alſo gives name to the *hundred* in which it is ſituate; which tho' not the *Sepulchre* of King *Offa*, who as *Florilegus* tells us was buryed in *Bedfordſhire* upon the bank of the river *Ouſe*[m], yet it muſt certainly be the *monument* of ſome great perſon of the ſame *name*, either buryed here alone, or elſe in company with divers others perhaps ſlain with him, this ſeeming indeed erected, not like the former upon a *civil*, but a *military* account; and yet of *Saxon* original, as the *name* teſtifies, tho' placed near the *Watlingſtreet*: which ſort of large *tumuli* caſt up over many ſlain together, the *Danes* call'd *Volcaſter* as *Wormius* informs us[n]. But herein I am not poſitive.

36. Having hitherto conſidered ſuch *antiquities* only, as I think have been occaſion'd by the conflicts of the *Saxons* amongſt

[k] *Gabr. Plat's diſcovery of ſubterraneal treaſure Chap.* 1. [l] *Olai Wormii Monument. Danicor. Lib.* 1. *cap.* 7. [m] *Matth. Weſtmonaſterien. Flor. Hiſtor. in An.* 797. [n] *Olai. Wormii Loco ſuprà citat.*

themſelves:

themſelves: I come next to treat of ſuch as are the deplorable remains of the bloody warrs 'twixt the *Saxons* and *Danes*: amongſt which the firſt in order of time, are the *ruins* abovementioned in *Wrotteſley* park §§. 4 and 5 of this *Chapter*, which upon ſecond conſiderations I am inclined to beleive, if *Theotenhall* doe import the *habitation* of *heathens* as *Camden* informs us[o], are no *Roman antiquity*, but the true remains of the old *Theotenhall* of the *Danes*, who I ſuppoſe having reſided there for ſome time, built them this City or place of habitation, which in the year of our Lord 907 as *Roger Hoveden*[p], but not till An. 911 as *Simeon Dunelmenſis*, *John Brompton*, and *Florentius Wigorn*, in all probability was finally raſed by *Edward Senior* in that ſignal victory he there obtained over them, whereof we have an account in all thoſe *Hiſtorians*[q]: but a more particular one in *Hen. Huntindon*, who makes this battle ſo terrible, that he ſpares not to cry out, *Quis autem cuneorum horrendos aggreſſus, ignitas colliſiones, formidabiles tinnitus, feras irruptiones, miſerabiles occaſus, clamores horriſonos, ſcriptis exequetur*[r]? i. e. ſo very terible, that he thought it could not be fully deſcribed by the moſt exquiſite pen.

37. To revenge whoſe quarrel, another *Army* of them that poſſeſt *Northumberland*, breaking a league they had formerly made with *King Edward*, invaded *Mercia* in the very ſame year, pillageing the Country wherever they came: againſt whom king *Edward* bringing a powerfull Army both of *Weſt Saxons* and *Mercians*, overtook them in their return at the village of *Wednesfield*, not farr from *Theotenhall*, and overthrew them again in another bloody battle, wherein he kill'd *Eowills* and *Halfden* or *Hildein* two of their *Kings*, and *Ohter* and *Scurfa* two of their Earles, and 9 other Noblemen[s], to whom *Ethelwerdus* adds *Juvar* or *Hinguar* another of their *Kings*[t]. Of which great ſlaughter yet there are no more remains but a *Low* in a ground call'd *South Low* field, which has lately had a *windmill* ſet upon it, the *Low* being there before as within memory: There is another ground here too call'd *North-Low* field, which no queſtion heretofore has had alſo a *Low* in it, tho' now it be gone. Which doubtleſs were caſt up over ſome of thoſe kings, or *Daniſh* or *Saxon* nobles, then ſlain here; and ſo 'tis like, was *Stowman's* hill on the road betwixt *Wolverhampton* and *Walſall*, half a mile *SW* of the village of *Nechels*.

[o] *Camden's Britannia in Staffordſh. ſub. initium.* [p] *Rogeri de Hoveden Annalium parte priori.* [q] *In An.* 911. [r] *Hen. Huntindonienſ. Hiſtoriar. Lib. 5. cap. 5.* [s] *Florent. Wigorn. Chron. ex Chron. in An.* 911. *& Matth. Weſt. in eodem Anno.* [t] *Chronicor. Ethelwerdi Lib. 4. cap. 4.*

38. In

38. In the year following 912 dyed the noble Duke *Æthelred* Vice-Roy of *Mercia*; after whom his moſt renowned Lady *Ægelfleda* alias *Elfleda* daughter of King *Alfred*, governed the kingdom of *Mercia* with ſo great conduct, ſo much to the advantage and increaſe of her own dominions, and terror of her enemies: *ut non ſolum Domina vel Regina, verum etiam* Rex *ad laudem & excellentiam à pluribus vocaretur*, i. e. that ſhe was not only call'd *Lady* and *Queen*, but alſo *King* by way of praiſe and extreme excellence, as the Abbots *Ethelfed* and *Brompton* affirm[u]. And indeed all things conſidered ſhe deſerved no leſs; for ſhe not only ſubdued the *Britans* and *Danes*, and all that oppoſed her; but took *Darby* and *Leiceſter* and added them to her *Kingdom*: building and repairing ſo many *Caſtles* and *Townes*, that it would be endleſs to recount them. Wherefore I ſhall content my ſelf only in relating what ſhe did in this *County*, remitting the Reader for the reſt to the ancient *Hiſtorians*: particularly about the year 916 ſhe fortifyed *Weadbirig* now *Wednesbury* in this *County*[w]; and rebuilt *Tamworth* deſtroyed by the *Danes*, where ſhe after dyed in the year 919[x]; She alſo built a *Caſtle* at the Town of *Stafford*, on the North ſide of the River *Sow*[y], whereof I could not hear of any footſtepps remaining; that upon the *hill* above the *Town*, at near a miles diſtance, the *Proſpects* whereof are both here annext *Tab.* 34. being built long after by *Ranulf* or *Ralph* the firſt Earl of *Stafford*: tho' Mr *Erdeſwick* tells us he had a certain deed dated *apud Caſtrum juxta Stafford* long before the days of the ſaid Earl *Ralph*, whence he concludes that he did but reedify the *Caſtle* and not new *build* it[z], which perhaps may be true: but for my part I conjecture that the firſt *Stafford-Caſtle* mention'd in that deed, might rather ſtand within the *Entrenchment* at *Billington*, which perhaps may be only the *remains* of this *Caſtle*, and not of the battle between King *Eardulf* and Duke *Wada*, as was thought above §. 31. in which opinion I am not a little confirmed, the *lands* wherein theſe *entrenchments* are, being not far diſtant, and ſtill remaining a part of the *demeſne* land of the *Barony* of *Stafford*.

39. Of what antiquity the Town of *Hampton* may be is very uncertain, it not being mention'd in any *record* that I could either meet or hear of, till the pious *Wulfruna* the relict of *Athelm* Duke of *Northampton*, in the days of King *Ethelred*

[u] *Ethelredi Abbatis Rieval. Genealog. Regum Angl. & Joh. Brompton Abbat. Jornal. in vita regis Edvard. Sen.* [w] *Florent. Wigorn Chron. ex Chron in An* 916. [x] *Matth. Weſtmonaſt. Flor. Hiſtoriar. in An.* 919. [y] *Florent. Wigorn in An.* 914. [z] *Sampſ. Erdeſwick's view of Staffordſh. in Stafford.*

and

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(and not of King *Edgar* as Mr *Erdeswick* thought [a]) in the year 996 built and endowed the *Church* or *Monastery* there [b], in reguard of which pious action of hers, it was ever after call'd *Wulfrunes-Hampton*, since by corruption of speech *Wolverhampton*. In which new foundation she placed a *Dean* and *Prebends*, or secular *Canons*, as Mr *Erdeswick* calls them [c], with other suitable Officers, for the increase of *Religion*: wherein yet it seems she mist of her aime for some time at lest, for before it had stood near 200 years, these *Prebends* grew so enormous in their lives, as *Petrus Blesensis* (who was their *Dean*) testifies, *ut cantabantur eorum turpitudines in triviis*, that their wickedness was made known by *Songs* in the streets; which of what kind it was he afterwards tells us, *ipsi vero publice & aperte fornicantes prædicabant peccata sua*, i. e. that they were not ashamed of publick *fornication*; of which when he admonish't them, tho' he did it he says *toto charitatis affectu*, with all imaginable mildness, yet being as deaf as adders they despised his reproof [d].

40. Whereupon complaining to the *King* and Arch-Bishop of *Canterbury*, he obtained terrible threatning *Letters* to them, importing that they would endeavour to perswade the *Pope* utterly to dissolve them, but still all to little purpose, for they grew hereupon but the more contumacious. Nay he further tells us that they were advanced at last to that height of wickedness, that having marryed interchangeably one anothers *daughters* and *neeces*, if upon the death of a *Canon* he put in an honest man (for the donation and institution of these *Prebends* then belong'd to the *Dean*) the *Son* or *Nephew* of the deceased would challenge notwithstanding the *Patrimony*, as they call'd it, and flying into the *woods* would joyn with *theeves* and *robbers*, and invade the right of the new *Canon*. From which evill practises the good *Dean* being unable to reclaim them, he humbly besought the *King* and *Arch-Bishop*, to turn out these *Prebends*, and place *Cistercians* in their room; in order whereunto, being tired out with their *incorrigibility*, he resigned his *Deanry* into the hands of the *Arch-Bishop*, *circa An. Dom.* 1200; and wrot a Letter to Pope *Innocent* the *third*, beseeching him that he would further and confirm whatever the *Arch-Bishop* had done in this matter, who it seems in the mean time had admitted some of the said *Order* [e]. But I suppose either the *Pope* interposed in this designe, or some other inconvenience not then foreseen, prevented its execution: for there yet remains some umbrage of a *Dean* and *Prebends* here to this very day.

[a] *Idem in Wolverhampton.* [b] *D. Gul. Dugdal. Monast. Angl. Vol.* 1. *p.* 988. [c] *Loco supra citat.* [d] *Pet. Blesensis Epistolar. Lib. Ep.* 152. *ad Innocent* 3. [e] *Ibidem.*

41. About this time, the *Danes* under *Swain* and his Son *Canutus*, had got good footing in *England*, the latter of which, after divers viciſſitudes, or fortune of the *warrs* in the raignes of King *Ethelred* and *Edmund Ironſide*, obtained the whole *Kingdom:* during which altercations he made ſeveral inrodes into *Mercia*, eſpecially in the years 1013 and 1016 [f], and amongſt other places poſſeſt himſelf of that Forreſt or Chaſe in this *County* called ſtill by his name *Cane* or *Cannock-wood*, quaſi *Canuti Sylva:* upon the edge whereof, in the Park at *Beaudeſart*, *W S W* of the houſe, at about half a miles diſtance, there ſtill remains a large fortification call'd the *Caſtle-hill*, encompaſs'd with a double *agger* and *trench*, which are in a manner circular, except on the *S E* ſide. Which runs pretty ſtraight, ſo that it ſeems to hold the figure of a *Theater* of about 270 paces *diameter*: and this for name ſake only, becauſe within the verge of *Canutus*'s wood, I take leave to preſume might be caſt up by *him*, when he made his incurſions into this *Country*, and thoſe horrible divaſtions mention'd by the *Hiſtorians* in the years above mention'd [g], unleſs one ſhould rather think it might be caſt up by the *Mercians*, in defence of their *Country*. The little hill upon *Ickenildſtreet* way muſt likewiſe be caſt up in all probability about this time, the *Daniſh* Kings uſually ſpeaking to their Armies from ſuch elevated places, which they moſt times made of ſtone, but ſometimes of earth, as appears by the little hill without the *Forum* of ſtone at *Leir* in *Seland* [h], and another ſuch like hillock call'd *Trollebarolhoy* near *Lundie* in *Scania* [i], it being indifferent whether the *King* aſcended a *ſtone*, or mount of *earth*, ſo thence he might be ſeen and heard by the people, either of which they called the Kongſtolen, i. e. the *Kings-ſtool*, or as here the *Kings-ſtanding*.

42. Not long after this in the year 1017, King *Edmund Ironſide* dying at *London* according to *Florentius Wigornienſis*, at *Oxford* according to *Matthew* of *Weſtminſter* [k]; *Canutus* took poſſeſſion of the whole *kingdom*, and raigned ſole King of *England* for 20 years: during which time and the raignes of his two *ſucceſſors* alſo *Daniſh* Kings of *England*, many of their *Cuſtoms* and *Utenſills*, no doubt on't, obtain'd here, amongſt which I gueſs I may reckon an ancient ſort of *Almanacks* they call *Cloggs*, made upon ſquare *ſticks*, ſtill in uſe here amongſt the meaner ſort of people, which I cannot but think muſt be ſome remains of the *Daniſh* goverment, finding the ſame with little difference

[f] *Matth. Weſtmonaſt. Flor. Hiſtoriar. in dictis Annis. & Florent. Wigorn. Chron. ex Chron. in iiſdem.* [g] *Ibidem.* [h] *Olai. Wormii Monum. Dan. Lib.* 1. *cap.* 5. [i] *Idem. Lib.* 1. *cap.* 12. [k] *Mat. Weſt. & Florent. Wigornienſ. in dicto An.*

to

to have been uſed alſo formerly, both in *Sweden* and *Denmarke*, as plainly appears from *Olaus Magnus*[l] and *Olaus Wormius*[m]: which being a ſort of Antiquity ſo little known, that it hath ſcarce been yet heard of in the *Southern* parts of *England*, and underſtood now but by few of the *Gentry* in the *Northern*, I ſhall be the more particular in my account of them. And ſhall conſider 1. the divers *names* of them; 2. the variety of *materials* out of which they have been made; 3. the *kinds* of them; 4. the *figures* that are inſcribed in them; and 5. the divers *uſes* of thoſe *inſcriptions*: of all which in their order.

43. And firſt as to the divers *names* of them, they are here call'd *Cloggs*, for what reaſon I could not learn, nor indeed imagin, unleſs from the *Engliſh Logg* (a *term* we uſually give to any piece of wood) or from the likeneſs of ſome of the greater ſorts of them to the *Cloggs*, wherewith we uſually reſtrain the wild, extravagant, miſcheivous motions of ſome of our *doggs*. Secondly from their uſe they are more properly call'd *Almanacks*, quaſi *Al-mon-aght*, that is to ſay *Al-mon-heed*, viz. the reguar'd or obſervation of all the *Moones*: becauſe by theſe ſquared *ſticks*, ſays *Verſtegan*, they could certainly tell, when the *new-moons*, *full moons*, and other *changes* ſhould happen, and conſequently *Eaſter*, and the other moveable feaſts[m]: which doubtleſs is as ſignificant an *Etymology* of the word, as any can be thought of, tho' perhaps not ſo true as thoſe of *Salmaſius*[o] and *Skinner*[p], deduced from the *Perſian* and *Arabick* tongues. Thirdly by the *Danes* they are call'd *Rimſtocks*, not only becauſe the *Dominical Letters* were anciently expreſs't on them in *Runick* Characters; but alſo for that the word *Rimur* anciently ſignify'd a *Calendar*[q], whence the word *Rimſtock* (denoting likewiſe the matter of which they were commonly made) importes no more than a *wooden-Almanack*, ſuch as ours are.

44. Fourthly, by the *Norwegians* (with whom they are ſtill in uſe) they are call'd *Primſtaves*[r], and that for good reaſon too, the principal and moſt uſefull thing inſcribed on them, being the *Prime* or *golden number*, whence the changes of the *Moones* are underſtood, which becauſe uſually done amongſt them upon the *ſtaves* they walk with (whereof there are good *Patterns* in the *Muſæum* at *Oxon*) they moſt properly, from both the uſes they had of them, call'd them *Primſtaves*. And

[l] *Olai Magni. de rnu Gent. Sept. Lib.* 1. *cap.* 34. *& Lib.* 18. *cap.* 20. [m] *Olai Wormii Faſt. Danic. Lib.* 2. *cap.* 2, 3, 4, 5. [n] *Rich. Verſtegan's reſtitution of decay'd Antiq. chap.* 3. [o] *Claud. Salmaſii de An. Climactericis & antiq. Aſtrolog. p.* 605, 606. *Edit. Lugd. Bat.* 1648. [p] *Steph. Skinneri Etymolog. in verbo.* [q] *Olai. Wormii Feſt. Danic. Lib.* 1. *cap.* 2. [r] *Ibidem.*

laſtly by the *Swedes*, as *Olaus Magnus* delivers (who alſo made them of this *form*) they are as ſignificantly termed *Baculi annales*, with which the *Laics* being ſuſtained in their long journeys to *Church*, at their weekly congreſs did uſually debate and conclude from them, the *Lunar conjunctions* and *oppoſitions*, and thence the moveable feaſts [s]. Tho' they ſometimes likewiſe made them *ex aſſeribus oblongis*, of little oblong boards, as *Wormius* teſtifies (whereof we have alſo a Pattern in the *Muſæum*) upon which account he reprehends *Olaus Magnus*, for giving them the name abovemention'd, as too narrow an appellation [t]: but I think with little reaſon, it being as proper a name for the kind he there ſpeaks of, as the *Primſtaf* of the *Notwegians*, which he does not find fault with. And ſo much for the *names*.

45. As to the matter of thoſe of them I met with in this *County*, there are ſome few of *braſs*, whereof I had one ſent me by the moſt ingenious *Charles Cotton* of *Beresford* Eſq; but the moſt of them of *wood*, and theſe chiefly of *box*, others there are of *Firr*, and ſome of *Oak*, but theſe not ſo frequent. *Wormius* tells us that in *Denmark* there are ſome of them made *ex oſſibus oblongis teſſellatim ſectis & colligatis* [u], and others inſcribed in a *hollow-bone* [w]; He acquaints us alſo with ſome ancient ones, made of *horn* [x]; but I met with none of theſe in this *County*, tho' all people, no queſtion, made them of ſuch materials, as they thought fitteſt for their purpoſe. And thirdly as to the *kinds* of them; ſome are perfect, containing the *Dominical Letters*, as well as the *Prime* and marks for the *feaſts*, engraven upon them, and ſuch are our *Primeſtaves* in the *Muſæum* at *Oxford*. Others imperfect, having only the *Prime* and the *immoveable feaſts* on them, and ſuch are all thoſe I met with in *Staffordſhire*; which yet are of two *kinds* alſo, ſome *publick*, of a larger ſize, which hang commonly here at one end of the *Mantletree* of their *Chimneys*, for the uſe of the whole *family*, as *Wormius* likewiſe acquaints us they uſually doe in *Denmark* [y]; and others *privat*, of a ſmaller ſize, which they carry in their *pockets*; as we have them now ſince the invention of printing: ſome *Almanacks* being fitted to hang up in our houſes, and others for privat uſe, which we carry about us.

46. Fourthly for the better underſtanding of the *figures* inſcribed upon theſe *Cloggs*, I have cauſed one of them (which is a family *Clogg*) to be repreſented *in plano Tab.* 35. each

[s] *Olai Magni de. ritu Gent. Sept. Lib.* 16. *cap.* 20. *&* 24. [t] *Olai Wormii Faſt. Danic. Lib.* 1. *cap.* 3. [u] *Idem Lib.* 1. *cap.* 4. *& Lib.* 3. *in proœm.* [w] *Idem Lib.* 2. *cap.* 3. [x] *Idem Lib.* 1. *cap.* 17. [y] *Olai Wormii Faſt. Danic. Lib.* 1. *cap.* 4.

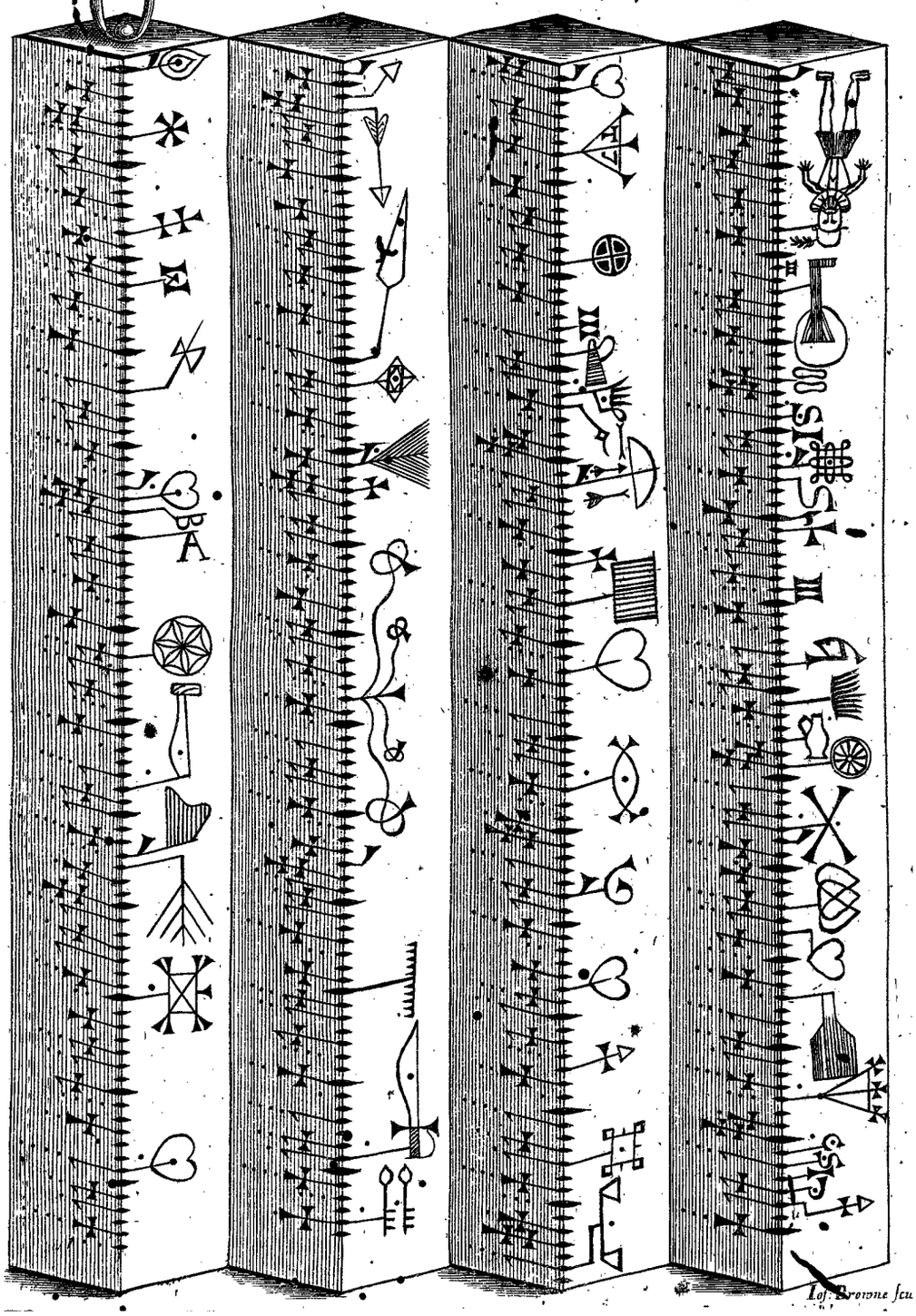
angle

TAB. XXXV.

ad pag: 420.

To the Worsp.ll
ELIAS ASHMOLE Esqr.
This Ancient ALMANACK, yet still in use in his native Country of Staffordshire, in memory of his favours is gratefully dedicated by
R. P. L. D.

THE CLOG, or STAFFORDSHIRE Perpetuall ALMANACK



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angle of the *ſquare ſtick*, with the moiety of each of the *flat ſides* belonging to it, being expreſs't apart; which I took to be the moſt uſefull and moſt clear method, it could poſſibly be done in. But to deſcend to *particulars*, it being firſt premiſed that all theſe *Almanacks* follow the *Iulian* form, let it firſt be noted that there are 3 *Months* contained upon every of the 4 *edges*, and that the *number* of the *days* in them are repreſented by the *notches*, that which begins each month having a *patulous* ſtroke turned up from it, every *ſeventh notch* being alſo of a larger Size, which ſtands for *Sunday*, or perhaps for *A*, or any other *Letters*, as they may come in their turn to be either *Dominical* or *week day* Letters, which ſhews, that the *Dominical Letter* or *Cycle* of the *Sun*, is not ſo much reguarded in this *Almanack*, but committed to memory, the *Sundays* and other Days here being fixt; whereas the *Dominical* and other *Letters* vary every year in a *retrograd* order, for one Letter at leſt, and ſometimes two, upon account that every common *Iulian* year contains 52 week and one day over, and every *Biſſextile* the ſame number of weeks, and two days over: whence it comes to paſs that every *year* ending upon the ſame *day* of the *week* it began, the next always begins on the following day, altering the *Dominical* one *Letter* backward (and conſequently all the *Letters* of the working days too) in the common year, and two *Letters* on the *Leap-year*: the firſt *Letter* ſerving from the 1 of *Jan.* to the 24. of *March*, and the latter ever after to the end of the year.

47. Which *Dominical* and other *Letters* are all engraven in *Ulfila's* later *Gothick Characters*, upon all the *Daniſh Rimſtocks* of *Wormius*[z], and the aforeſaid *Swediſh* or *Norwegian Primſtaves* (which I therefore ſaid were of the perfect kind) in *Olaus Magnus*[a], and the *Aſhmolean Muſæum*; their *Dominicals* and *week-day* Letters being, ᚠ *frey*, ᚢ *ur*, ᚦ *thor*, ᚨ *os*, ᚱ *reid*, ᚲ *kaun*, ᚺ *hagl*[b], the firſt ſeven of their *alphabet*, as ours are; but not anſwering the *powers* of our firſt ſeven, but of *f*, *u*, *tzh*, *o*, *r*, *k*, *h*. Which conſtantly altering, as I ſaid before, upon account that the following *year* never began on the ſame *day* of the *week* with the former *year*, but with the following day, & ſo altering the *Dominical* and other Letters: Our *anceſtors* I ſuppoſe did not think it worth while, to inſcribe ſuch *moveable Characters* at all, upon their *Cloggs* or *Almanacks* (the knowledg of the *Cycle* of the *Sun* too, being but of little uſe to them) but father to commit ſuch an

[z] *Idem. Lib. 2. cap. 2.* [a] *Olai Magni de ritu Gent. Sept. Lib. 1. cap. 34* [b] *Olai Verelii Runographiæ Scandicæ Cap. 7.*

eaſy obſervation, as the removeal of *Sunday* or any other day one or two days backward, to the eaſe of their *memories*: theſe larger *notches* being ſufficient to intimate, that a *ſeventh* part of time muſt always be allotted (however it fall out) for *divine ſervices*.

48. Over againſt many of the *notches*, whether great or ſmall, that ſtand in the *Clogg* for the *days* of each *Month*, there are placed on the left hand ſeveral marks or *Symbols* denoting the *golden number* or *cycle* of the *Moon*, which number if under 5, is repreſented by ſo many *points*, and that perhaps as naturally as by ſo many *ſtroaks*; but if 5, a line is drawn from the *notch* or day to which it belongs, with a *hook* returned back againſt the courſe of the line, that, if cut off at due diſtance, may be taken for a V, which being the *fift* vowel, antiquity perhaps has been pleaſed to make uſe of, to repreſent the number 5; as X for ten, which is nothing elſe but a compoſition of two V's turned tail to tail, as the learned Dr *Wallis* has very well noted[a]: but to proceed, if the golden number be above 5, and under 10; it is then markt out to us by the *hooked line*, which is five, and with one *point*, which makes 6; or two, which makes 7; or 3, for 8; and 4, for 9; the ſaid line being croſs't with a *ſtroak* patulous at each end, which repreſents an X, when the *golden number* for the *day*, over againſt which it is put, is ten; points being added (as above over the *hook* for *five*) till the number ariſes to 15, when a *hook* is placed again at the end of the *line* above the X, to ſhew us that number.

49. Above theſe, the *points* are added again till the *number* amounts to 19, where the *line* iſſuing from the *day* is croſs't with two *patulous ſtroaks* (as if it were 20) as may be ſeen on the *Clogg Jan.* 5. and ſo againſt every day of each month, whoſe *golden number* is 19: in which *number* of *years*, the *Moone* returning again to be in *conjunction* with the *Sun*, on the very ſame *day* (tho' not *hour*) it was before, as was firſt obſerved by *Meton* the *Athenian* 431 years before the birth of *Chriſt*[*], there needs no more *numbers* than 19, to expreſs the abſolution of its whole *Cycle*, and therefore we find no more on the *Clogg*, which why it ſhould be repreſented by the *Symbol* of *twenty*, when it might have been as eaſily done by its *own*, I cannot imagin, unleſs it may paſs for a reaſon, that our *anceſtors* thought, that an even *round* number did more gracefully ſet forth, or denote the completion of the *Moones cycle*, than an *odd* number could. However hence it appears, that theſe *Symbols* are

[a] *Joh. Walliſii Arithmeticæ cap.* 8. [*] *Chriſtoph. Clavii Calendar. Gregor. cap.* 8. §. 3.

no

no ſuch *Hieroglyphical Characters* confuſedly placed, as they ſeem at firſt ſight, but have a more rational orderly texture than the *Runæ* upon the *Daniſh Rimeſtocks*, or the *Sweediſh* or *Norwegian Primſtaves*, where the ſixteen ſimple *Runæ*, & the three compound ones in their *alphabetical* order, ſtand as well for the *golden number* of 19, as the *ſeven* firſt did, for ſo many *Dominical Letters*: ᚠ *Frey* being put for 1. *Ur* ᚢ for 2. *Thor* ᚦ for 3. *Os* ᚨ for 4. *Raid* ᚱ for 5. *Kaun* ᚲ for 6. *Hagl* ᚼ for 7. *Naud* ᚾ for 8. *Is* ᛁ for 9. *Ar* ᛅ for 10. *Sun* ᛋ for 11. *Tyr* ᛏ for 12. *Biark* ᛒ for 13. *Laugur* ᛚ for 14. *Madur* ᛘ for 15. *Aur* ᛦ for 16. *Aurlaugr* ᛏ for 17. *Twimadur* ᛝ for 18. *Belgtzhor* ᛜ for 19. Which three laſt are compound *Characters*, and rather *Syllables* than *letters*[d]: than which (I ſay) the *Symbols* ſet on our *Cloggs* have a more rational texture; theſe being put to ſignify numbers *ad placitum*, whereas ours are as orderly made off from one another, and with as much dependance, as any of our *numbers*, expreſs't either by the *Arabic* or *barbarous figures*, or *numeral Letters*, now in uſe.

50. Nor are theſe *numbers* ſet ſo confuſedly againſt the *days* of each *Month*, as they appear at firſt ſight, for they are placed in *method*, whether we conſider them, as they immediatly *precede* and *follow* one another, or the *diſtances interceding* each figure of the ſame *value* or *denomination*. For proof whereof, let it be obſerved firſt, that every *following* number is made by adding 8 to the *preceding*, and every *preceding* number by adding 11 to the *following* one, and caſting away 19, when the *addition* ſhall exceed it: for Example, if to 3 ſet againſt the firſt of *Jan.* you add 8, it makes 11 ſet againſt the 3d. of the ſame *Month*, to which add 8 again, and it makes 19, whence 8 it ſelf comes to be the *following* figure, and 16 the next. On the contrary if to 16 you add 11, it makes 27, from which if you deduct 19 there remains 8 the number above it, and ſo onwards[e]; and this I find a *rule* without *exception* through the whole diſtribution of theſe *golden numbers*. And for the *diſtances* of the numbers of the ſame *denomination*, it may alſo be noted that they ſtand either 30 or 29 days aſunder, and this not at *pleaſure*, but for the moſt part *interchangeably*: for Example, after 3 which is ſet over againſt the firſt of *Jan.* at 30 days ſtance you will find 3 again on the laſt of the ſame *Month*; and at 29 days diſtance on the 1 of *March* 3 again; ſo on the laſt of *March* at 30 days diſtance 3 again, and ſo of all the reſt *interchangeably*, except where an *Emboliſmal Month* is in-

[d] *Olai Verelii Runographiæ Scandicæ Cap. 7.* [e] *Chriſtoph. Clavii Calendar. Gregor cap. 9.*

erted,

ſerted, whereof immediatly in the account I am about to give of the reaſon of theſe things.

51. Which that I may doe with all imaginable perſpicuity, let it be noted firſt, that the *Sun* finiſhing its courſe, i. e. returning to the ſame point in the *Zodiac* in 365 days, and 6 hours *proxime*; and the *Moone* in 29 days and 12 hours *proxime*, the *Moone* muſt finiſh her courſe or paſs through the *Zodiac* 12 ſeveral times in every common *Iulian* ſolar year; 29 days and $\frac{1}{2}$, or 354 days, being ſo many times to be found in 365 days; and 11 days over. Now becauſe it was not eaſy to determine in the *Calendar* the half days of the *Moons*, there being as I ſaid 29 days from one *New-Moone* to another, it was thought convenient (to ballance the matter) to make the *diſtances* betwixt the *New-Moons* to be interchangeably 29 and 30 days, and to place the *golden numbers* accordingly, the *Months* having 30 days being termed *Menſes pleni*, and thoſe but 29, *Cavi*; the *Pleni*, or *Lunar Months* of an *even* number of days, being ordinarily found in the *Solar* months that have *odd* days; and the *Cavi* or *Lunar-months* of *odd* days, in the *Solar* months of *even* days; according to the old verſe.

Impar Luna pari, par fiet in impare Menſe.

January, *March*, *May*, *July*, *September*, and *November*, being the *menſes pleni*; *February*, *April*, *June*, *Auguſt*, *October*, and *December*, the *Cavi*; upon account of which alternate reckoning of the *Lunar* months, it comes to paſs that all the *figures* on the *Clogg* (as I noted above) doe for the moſt part interchangeably ſtand at the diſtance of 30, and 29 days aſunder.

52. It being thus fully agreed on, the *Lunar months* ſhould conſiſt of 29 and 30 days apiece, *alternatim:* that the times of the *new-moones* might be for ever ſtated, the *Chriſtians* of *Alexandria*, as Dr *Newton* tells us, *An.* 323, two years before the *Council* of *Nice*, obſerving that the *new-moon* next the *Vernal Equinox* was upon the 27th day of the *Egyptian* month *Phamanoth*, anſwering to the 23d of our *March*, placed againſt that day (it being the firſt year of their *obſervation* of this *Cycle*) the *golden Number* 1, and ſo again at 29 days diſtance, the ſame number, againſt the 26 day of *Pharmuthi*, anſwering to our 21 of *April*, that being the *menſis cavus*; and at 30 days diſtance, the ſame again oppoſit to the 26 of the month *Phacon*, anſwering to our 21 of *May*; and ſo onward through the whole year[f]. Upon which ground by the like progreſſion, are

[f] *Newton's Coſmograph. Part.* 2. *Chap.* 2.

all

all the *golden numbers* ſet alſo in the *margins* of the *Roman Calendars*: the golden number 1. being placed, as I ſaid, againſt *March* the 23d, *April* 11, *May* 21, *June* 19, *July* 19, *Aug.* 17, *Sept.* 16, *Oct.* 15, *Nov.* 14, *Dec.* 13, as they are found upon the *Clogg*. But then becauſe in the following year the *golden number* was to be 2, reckoning 30 days from the 13 of *Decemb.* (that being ordinarily *menſis cavus*, and *Jan. plenus*) the *golden number* 2 was therefore ſet to *Jan.* 12, *Febr.* 10, *March* 12, *Apr.* 10, *May* 10, *June* 8, *July* 8, *Aug.* 6, *Sept.* 5, *Octob.* 4, *Nov.* 3, and *Dec.* 2. From whence reckoning 30 days as before, the *golden number* 3 comes in courſe in the third year to be placed againſt the firſt of *January*.

53. In which year the *Fathers* of the *Nicene Council*, being about to ſettle the time for the Chriſtian obſervation of *Eaſter*, and that (as the learned Dr *Wallis* notes) as near as they could to the time of the *Jewiſh Paſſover*, which was always celebrated on the 14 day of the firſt *month* at *Even*, i. e. according to their computation (who began their day at *Sun* ſet) at the begining of the 15 day, the day of *full moone* [g]: they were neceſſitated for this purpoſe to ſettle the *golden number* or *cycle* of the *Moone*, which having been rightly uſed two years before by the *Chriſtians* of *Alexandria*, they thought not fit to alter it, but to goe on from the time of their firſt having uſed it, as the *Church* of *England* has ever ſince obſerved, whence it came to paſs that the number 3 is placed againſt the 1 of *Jan.* and not the number 1, which, had the *Fathers* pleaſed then to have begun the *Cycle*, might have as well been done: but not thinking fit (as I ſaid before) ſo to doe, they continued the number 3 in the *margins* of their *Calendars* (as we ſee it alſo in the *Clogg*) againſt the 1 of *Jan.* which number by reckoning 30 and 29 days to each *Lunation* interchangeably, falls alſo upon *Jan.* 31, *Mar.* 1, and 31, *Apr.* 29. *May* 29, *June* 27, *July* 27, *Aug.* 25, *Sept.* 24, *Oct.* 23, *Nov.* 22, *Dec.* 21. Whence going on as before, and counting 4 for the *golden number* of the next year, it will be likewiſe found on *Jan.* 20, *Febr.* 18, *Mar.* 20, *Apr.* 18, *May* 18, *June* 16, *July* 16, *Aug.* 14, *Sept.* 13, *Octob.* 12, *Nov.* 11, *Dec.* 10. And thus, had the *Lunar* and *Solar* years been equal, the *Rule* had held on through the whole *Decennovennal Cycle*, without exception.

54. But the *Lunar* falling ſhort of the *Solar* year full 11

[g] *Dr Wallis's Treatiſe concerning the Paſchal Tables in the book of Common Prayer. MS. preſented to the R. Society.*

days, it muſt needs follow, that going on as above, and taking 5 for the *golden number* in the *third* year from the ſettlement by the *Council* of *Nice*, that the *Moone* muſt have fallen ſhort thrice 11, or 33 days, ſo that the *Lunar months* being run ſo far backwards as to be almoſt out of the *Solar months*, to which they were reputed to belong; an *Emboliſme* of 30 days or a full Month muſt needs be made ſomewhere this year, to bring matters in a tolerable poſture again: and for this reaſon the number 5 is ſet before *Jan.* 9, *Febr.* 7, *Mar.* 9, *Apr.* 7, *May* 7, *June* 5, *July* 5, *Aug.* 3, *Sept.* 2, and alſo before the 2 of *Octob.* and not the *firſt*, that ſo there may be two *Lunations* together of 30 days, the ſame number 5 being ſet notwithſtanding to the 31 of the ſame *Octob.* to make the *Lunation* to conſiſt again of 29 days, and to the 30 of *Novemb.* inſtead of the 29, that ſo a *Lunation* of 30 may again ſucceed as it ought. In like manner in the 6 year (the golden number being 8) having gone through the 4th and 5ſt as common years, the *golden number* is ſet oppoſit to the 5 of *Apr.* which ſhould have been upon the 4; and in the 9th year, the golden number 11 is ſet to the 2 of *Febr.* which ſhould have been upon the *firſt*; and ſo as often as 30 days will ariſe out of the 11 ſupernumerary days in the whole *Cycle* of the 19 years.

55. Now becauſe theſe 11 days doe in 19 years amount to 209 days, there muſt needs be 7 *Emboliſmal months*, which by a kind of injection or interpoſition muſt be ſomewhere reckon'd within the 19 years, whereof 6 may contain 30 days apiece (as will be found upon the *diviſion*) and one 29 days; the years in which they are *intercalated* being ſtiled *Emboliſmal years*, to diſtinguiſh them from the *common years*, which always contain 354 days, whereas 6 of theſe *Emboliſmal years* doe each of them take up 384 days; and the 7th (in which the 29 days are reckon'd) 383 days. Which *Emboliſmal years*, had the *Nicene Fathers* began the *Cycle* at the time they ſettled it, and prefixt the *golden number* 1. to the *firſt* of *Jan.* had been properly theſe *ſeven* 3. 6. 9. 11. 14. 17. 19 [h]. But becauſe they thought convenient (as was ſhewn above) to continue what was before begun by the *Chriſtians* of *Alexandria*, and to commence their ſettlement on the 3d. year of the *Moones cycle*, therefore the *Emboliſmal years* in this *Cycle* are 5. 8. 11. 13. 16. 19. 2. which according to *Robert Groſteſt* Biſhop of *Linc.* *Johannes de Sacro Boſco*, and moſt of

[h] *Dr Newton's Coſmograph. Part. 2. Chap. 2.*

the

the ancient *Computiſts* (as quoted by Dr *Wallis*[i]) were expreſly declared to be thus inſerted.

	Begining	Ending	Golden Numb.
I.	*Sept.* 2.	*Octob.* 1.	5.
II.	*Mar.* 6.	*April.* 4.	8.
III.	*Jan.* 3.	*Febr.* 1.	11.
IV.	*Nov.* 2.	*Dec.* 1.	13.
V.	*Aug.* 2.	*Aug.* 31.	16.
VI.	*Mar.* 5.	*Apr.* 3.	19.
VII.	*Dec.* 2.	*Dec.* 31.	2.

Which yet in effect are the ſame (as the Reverend Dr *Newton* makes it plainly appear[k]) as if they had been inſerted according as they ſhould, if the *Nicene* Fathers had begun the *Moons Cycle* in the year they ſettled it, and placed the *golden number* 1. before the firſt of *January*.

56. And this is all worthy notice relating to the diſtribution of the *golden numbers*, *Emboliſmal months*, &c. but that there is a peculiar reguard in ordering theſe matters to be had in placing the *golden numbers* from the 8 of *March*. to the 5 of *Apr.* within which compaſs none of the *Lunations* muſt exceed 29 days, becauſe no *Paſchal Lunation* may conſiſt of more; whence it is that from the 8 of *March* to the 6 of *Apr.* (to both which days the *golden number* 16 is prefixt) there are but 29 days; and from the 9th. of *March* to the 7. of *April.* (to both which days the *golden number* is 5) are alſo but 29 days; and ſo of the reſt, till you come to the *fift* of *April*, all the *Paſchal Lunations* and *golden numbers* falling out, and being expreſs't, between thoſe two days. Nor muſt it be forgot that the 7th and laſt *Emboliſmal month*, which never can conſiſt of above 29 days (19 times 11 being but 209, whereas 210 are requiſite for 7 times 30) is *intercalated* notwithſtanding as a month of 30, from *Mar.* the 5 to *Apr.* 4. where are two months together of 30 days, in the *year* when the *golden number* is 19, as well as in any of the reſt, which could not be unleſs the *intercalation* were there: in compenſation whereof the *Moone* for *July*, which ſhould have been of 30 days, they make this year but of 29, counting from *July* 1. to *July* 30; the *golden number* 19 being put to *July* the 30, which ſhould have been ſet before the 31: ſo that here are 3 months together of 29 days, the *triceſima Luna*, that ſhould have been in *July*, being ſkipt over, which they call *Saltus Lunæ*; which twas abſolutely neceſſary muſt be ſomewhere, by reaſon the *intercalatory months* were all of 30 days.

[i] *Dr Wallis's treatiſe concerning the Paſchal Tables in the Book of Common Prayer. MS.*
[k] *Joh. Newton's Coſmog. Part.* 2. *chap.* 2.

57. Thus having ſhewn the reaſon of the diſtribution of the *golden number* in general, it remains that I give a more particular account how it comes to paſs, that the *following golden number* ſhould be made by adding 8 to the *preceding*; and the *preceding* by adding 11 to the *following*: for the firſt whereof, I take the reaſon to be, that in 8 *Solar* years, allowing to each 365 days and 6 h. which are 2922 days, there happen to be 99 *Lunations* wanting one day, 12 h. 41′. 15″. 9‴; upon which account after 8 years the *Lunations* doe not begin upon the ſame day they did 8 years before, but one day and ½ later, *proxime*; wherefore after every *golden number* through the whole *Calendar*, another is written next it which exceeds it by *eight*, to ſhew that after 8 years the *New Moons* will not fall upon thoſe days, upon which the *antecedent golden numbers* are written, but upon thoſe to which the *numbers* are prefix't, that are made off them by *eight*. And becauſe in twice 8 years, the twice 12 hours and odd minutes make another *day* and better, therefore the *golden numbers* are not always immediatly put after each other upon all days of the months, but every *third* day, for the moſt part, is left vacant for theſe twice 12 hours; ſo that every two *golden numbers* have ordinarily 3 days allowed them, otherwiſe the *Lunations* in each 16 years time, would be always anticipated one day at leſt.

58. And the reaſon why every *preceding golden number* is formed of the *ſubſequent* by adding 11 is, becauſe in 11 *Solar* years, in which are 4017 days, there are 136 *Lunations* and one day, 14 h. 8′. 47″. 4‴. for that in 136 *Lunations* there are required only 4016 days 3 h. 51′. 12″. 56‴. and therefore the *New Moones* after 11 years, fall not on the ſame days they did the ſaid 11 years before, but one day and almoſt half another ſooner: upon which account before every *golden number*, is ſet another *golden number* that exceeds it by 11, to ſhew that after 11 years, the *New Moons* will not fall upon thoſe days they did 11 years before, but ſooner, *viz.* upon thoſe to which the *numbers* are prefixt, that are made off them by the addition of 11. Whence *Clavius* concludes that *Campanus* and many others of the ancient *Computiſts*, did not rightly ſet two *golden numbers* before *Decemb* 21. for that after 11 years the *New Moons* that fell upon that day (the *golden numbers* being 13 or 2) will neceſſarily happen one day and near ½ ſooner, as was ſhewn above; for evidence whereof, if theſe were rightly ſet, there muſt alſo be two other *golden numbers* put the day preceding, *viz.* 5

[1] *Chriſtoph. Clavii Calendar. Gregor. cap.* 9. §. 8.

and

and 13. and ſo two more again for them, and ſo quite through the *Calendar*: ſo that every day that has any, muſt have two *golden numbers* as well as this, and two *New Moones* falling on it within the *cycle*; whereas no other day but this even by theſe *Computiſts* is allowed above one, and theſe ſufficient too, to take up all the *New-Moons*. Upon which account I rather cloſe with *Clavius*, and place the number 13 upon the firſt of *Decemb.* and 2 alone upon the ſecond, as I find them upon ſeveral of theſe *Cloggs*, tho not in that repreſented above, 13 in that being put down to the *ſecond*, and 2 to the *third*, in which point I therefore count it defective, nor can I ſee any inconvenience that will follow hence, but that the *Emboliſmal month* (the *golden number* being 13) muſt then be reckon'd from *Dec.* 1. to the 31. as *Clavius* does [m], which perhaps may be none: but I forbear to lanch further into this controverſy, having already I fear tired the *Reader's* patience.

59. And proceed next to the *Inſcriptions*, iſſuing from the *notches*, to the right hand of them, ſome peculiar *notches* having *figures* ſet againſt them on this hand too, but all of different kinds, and not repeated like the former: which though they are *marks* or *ſymbols* of the *feſtival days*, expreſt after the *Egyptian Hieroglyphical* manner, *non literis, aut ſyllabarum compoſitione* as *Diodorus* tells us [n], *ſed imaginum forma*, not with Letters or Syllables, yet they are not ſet at random, but all carry with them a rational importance, ſome of them pointing out the *offices* or *endowments* of the Saints, before whoſe *feſtivals* they are put; others the manner of their *Martyrdoms*; and others only ſome eminent *action* or other *matter* ſome way relating to the *Saint*, or elſe the *work*, or *Sport*, in faſhion about the time when the *feaſt* is kept. Thus from the *Notch* which repreſents the 13 of *Jan.* or the feaſt of St *Hilary*, there iſſues a *Croſs* or badg of a *Biſhop* ſuch as St *Hilary* was; from the firſt of *March* a *harp*, ſhewing the *feaſt* of St *David*, who uſed to praiſe God on that inſtrument; againſt *June* the 29 the *Keys* for St *Peter*, reputed the *Ianitor* of heaven; and a pair of ſhooes againſt the 25 of *Octob.* the *feaſt* of St *Criſpin* the Patron of the *Shoomakers*. Of the ſecond kind, are the *Axe* ſet againſt the 25 of *January* or feaſt of St *Paul*, who was beheaded with an Axe; and a Sword againſt the 24 of *June* for St *John Baptiſt's* day, who perhaps was beheaded in the priſon with ſuch a weapon; So a *Gridiron* upon the 10 of *Auguſt* or feaſt of St *Laurence*, who ſuffer'd martyrdom upon one; and a *wheel* on the 25,

[m] *Idem Calendar. Gregor. cap.* 17. [n] *Diodori Siculi de Ægyptiacis Lib.* 4.

with a *decuſſated croſs* on the laſt of *Novemb.* for St *Catharine* and St *Andrew*, who are ſaid alſo to have ſuffered upon ſuch *inſtruments* of *death*.

60. And of the laſt kind, are the *marks* againſt the firſt of *January*, ſomewhat reſembling the cutting off of the *prepuce*, for the *Circumciſion*; the *Starr* on the 6 of the ſame *Month* to denote the *Epiphany*; a true *Lovers knot* againſt the 14 of *Febr.* for *Valentines* day, importing the time of *marryage* or *coupling* of *birds*; a *bough* againſt the 2 of *March* for St *Ceadda*, who lived a *Hermits* life in the woods near *Lichfield*; alſo a *bough* on the firſt of *May*, ſuch as they uſually ſet up about that time with great ſolemnity; and a *rake* on the 11 of *June* being St *Barnabies* day, importing that then it is *hay-harveſt*. So a *pot* againſt the 23 of *Novemb.* for the feaſt of St *Clement*, from the ancient cuſtom of going about that night, to begg drink to make merry with; and for the *Purification*, *Annuntiation*, and all other feaſts of our *Lady*, always the figure of a *heart*, which what it ſhould import relating to *Mary*, unleſs becauſe upon the *Shepherds* relation of their *Viſion*, *Mary* is *ſaid to have kept all theſe things, and ponder'd them in her heart*[o], I cannot imagin; laſtly for *Dec.* 25. or *Chriſtmaſs day*, a Horn; the ancient veſſel in which the *Danes* uſe to *Waſſayle*, or drink healths; ſignifying to us that this is the time we ought to rejoyce and make merry, *cornua exhaurienda notans*, as *Wormius* will have it[p]. Many ſuch *Symbols* there are too, for other feſtivals, which not being ſo conſtantly the ſame as theſe are, but varying almoſt upon every *Clogg*, I forbear any further expoſition of them; only adding that the marks for the greater feaſts ſolemnly obſerved in the Church have a large point ſet in the middle of them, and another over againſt the preceding day, if *vigills* or *faſts* were obſerved before them.

61. Thus having done with the *Inſcriptions* on both ſides the *notches*, it remains only that I ſhew what were the uſes of each: for the former whereof (I mean the *prime* or *golden number*) its only uſe anciently before the birth of *Chriſt*, was to ſhew the times the *New-Moons* would happen: but after his death it was applyed by the *Church* to an *Eccleſiaſtical* uſe, viz. to ſhew the true time of celebrating *Eaſter*, which it does to this day: that being to be eſteemed the *Paſchal Moone*, whoſe 14th day doth fall upon or after the *Vernal Equinox*, which in the days of the *Nicene* Fathers (as they were informed by the *Aſtronomers* of thoſe times) was upon the 21 of *March*; or which comes to

[o] *Luke* 2 *v.* 19. [p] *Olai Wormii Faſtor. Danicor. Lib.* 1. *cap.* 18.

the

the ſame purpoſe: that was to be reputed the *Paſchal Moone*, whoſe *Full* fell not on, but next after the *Vernal Equinox* or 21 of March, on which day if *Sunday*, or elſe the next *Sunday* following, *Eaſter* was always to be obſerved. So that the years of the *Moons Cycle* being ſettled as above, no body had then, nor has now more to doe, to find the time of *Eaſter*, but to conſult in their *Calendars* the *golden number* for the year within that compaſs, which ſhews the time of the *Paſchal New-Moone*, and to count 14 from it; or to find out the next *Full-Moone* after the *Eccleſiaſtical Equinox*; upon which day if *Sunday* (as I ſaid before) or the next *Sunday* after, *Eaſter* is to be kept. Whence it is that theſe numbers are ſometimes call'd the *Prime*, becauſe they doe *indicare primas Lunas*, and not only near *Eaſter*, but through the whole year; which was eſteemed by our *anceſtors* a thing of ſo excellent uſe, that they ſcrupled not to ſet them in the *margins* of their *Calendars* in characters of *gold*, whence they are ſtiled to this day, alſo the *golden number*.

62. But you will object perhaps and ſay, that upon obſerving of the *New Moones*, you find them not now to fall on thoſe days the *Prime* does direct, but ordinarily four, and ſometimes five days before; which is ſo great a truth, that in the *Breviaries* and *Miſſals* corrected by *Pius quintus*, the primes are removed 5 days upwards [q], and ſo we find them in the *Scotch Common Prayer Book* printed at *Edinborough* An. 1637, which I ſuppoſe was done, that the *primes* might agree with the *New-Moons*, as they fell at thoſe times, which by reaſon the *Cycle* of the *Moone* is 1h. 27′. 31″. 55‴. ſhorter then 19 *Julian* years, had then gone back ſince the *Council* of *Nice*, near 5 days, this προήγησις σεληναίων or anticipation, amounting to a day, in 312 years and ½, as *Clavius* computes it [r]. Which remedy of *Pius quintus*, and the Church of *Scotland*, had been agreeable enough, had the uſe of the *prime* been only to find the *Aſtronomical New Moones*. But our *Church* of *England* having not yet thought fit, to alter the obſervation of *Eaſter* from the time appointed by the *Nicene Councel*, the *primes* cannot be ſo alter'd without great confuſion, as the learned Dr *Wallis* has ſhewed at large [s], but muſt be ſtill continued where they were then, and ſtill remain on the *Clogg*: which now rather ſerve indeed, only for the ready finding of the *Eccleſiaſtical New-Moones*, than the *Aſtronomical*; tho' they may be computed too, only by reckoning them to fall about 4 days before; the *Cycle* of the *Moone* having ſo much anticipated the courſe of the *Sun* ſince the time of that *Council*,

[q] *Chriſtoph. Clavii Calendar. Gregorian. cap.* 9. §. 12. [r] *Ibidem. cap.* 8. §. 4. [s] *Dr. Wallis's Treatiſe concerning the Paſchal Tables in the Books of Common Prayer MS.*

Which

Which I take to be all the uſe that the *primes* are put to; but that by the *following* numbers being made by adding 8 to the *preceding*, and the *preceding* by adding 11 to the *following*; they alſo underſtand that every *following prime* will be in uſe 8 years after the *preceding*; and every *preceding* 11 years after the *following*. And as for the *Symbols* on the right hand the *notches*, their only uſe is for finding the *immoveable feaſts* (as the *primes* were cheifly for the *moveable*) as was hinted above.

63. Nor did the *Daniſh* goverment only bring in theſe *Cloggs*, but their manner of *buryal*, which was to erect over the graves of all perſons of quality tall *pyramidal* ſtones, ſuch as thoſe in the Church yards of *Leek*, *Draycot*, and *Chebſey*, which I took indeed at firſt to be only the *Epiſtylia* of ſo many *Croſſes*, till coming to *Ilam* and finding *two* in the ſame Church-yard, and *three* cloſe together at *Checkley*, I then began to think they muſt have ſome other original, and that moſt probably they might be funeral monuments of the dead; with which agrees the tradition of *theirs* at *Checkley*, the Inhabitants reporting them the memorials of 3 *Biſhops* ſlain in a battle fought here about ¼ of a mile *E NE* from the *Church*, in a place ſtill call'd *Naked Fields*, for that the bodies lay there naked and unburyed for ſome time after the fight: what ground there may be for this *tradition* I cannot find, but that they were *funeral monuments*, and of *Daniſh* original, I am fully confirmed, not only from the like ſtill remaining in *Denmark*[t], but here in *England* too; the Reverend and Learned *William Nicolſon* Archdeacon of *Carliſle*, having lately given us an account of much ſuch another as moſt of ours are, at *Beaucaſtle* in *Cumberland*, with *Runic* characters ſtill remaining upon it, inclining in figure to a ſquare *pyramid* or *obelisk*, with many pictures of *Saints* in *Sacerdotal* habits, and a great deal of *Chequer-work* engraven upon it, which he ſtiles a notable emblem of the *tumuli* of the *Ancients*[u].

64. All which (but the *Runic* characters) are alſo found upon ſome of ours, as may plainly be ſeen upon thoſe of *Checkley*, if the *Reader* pleaſe to look back to *Tab.* 33. where they are purpoſely repreſented for his ſatisfaction *Fig.* 9, 10, 11. which are the three ſtones mention'd by Mr *Camden*[w], whereof the *two* that ſtand furtheſt from the *Church*, are finely carved into *fret-work* and *imagery*, but the next it, plaine; the talleſt (now not above 6 foot) is that in the middle, the biggeſt being that moſt remote from the *Church*, but they all ſeem to have been formerly higher; I am ſure the biggeſt has, for I could perceive the

[t] *Olai Wormii Monument. Danicor. Lib.* 5. & 6. *inter Ripenſia & Norvagica.* [u] *Philoſoph. Tranſact. Numb.* 178. [w] *Camden in Stafford.*

feet

feet of an image on the top of it, whose *head* was higher on the stone when whole. That at *Leek* is much taller than these, and has also much *freiwork* and some *imagery* upon it, but I doe not remember any upon the rest. Which are all the *Antiquities* I found here remarkable that are certainly *Danish*, unless it be worthy notice, that it is very probable that *Leofric* Earl of *Mercia*, husband to the famous *Godeva*, who rodd through *Coventry* naked, and obtain'd thereby many large priviledges of her husband for them, dyed at his village of *Bromleyg*, or *Bromleage* as *Dunelmensis* calls it[y], in this *County*, though buryed at *Coventry*.

65. Yet there are many old *Customs* in use within memory, of whose originals I could find no tolerable account, that possibly might commence as high as these times; such as the service due from the Lord of *Essington* in this *County* to the Lord of *Hilton*, about a mile distant, *viz.* that the Lord of the Manor of *Essington* (now one Sr *Johns* Esq; late Sr *Gilbert Wakering*) shall bring a *goose* every *New years* day, and drive it round the fire in the *Hall* at *Hilton*, at least 3 times (which he is bound to doe as mean Lord) whil'st *Jack* of *Hilton* is blowing the fire. Now *Jack* of *Hilton*, is a little hollow Image of brass of about 12 Inches high, kneeling upon his left knee, and holding his right hand upon his head, and his left upon *Pego* or his *veretrum* erected, as in *Tab.* 33. *Fig.* 12. above mention'd; having a little *hole* in the place of the *mouth*, about the bigness of a great pins head, and another in the back about $\frac{1}{3}$ of an inch *diameter*, at which last hole it is fill'd with water, it holding about 4 pints and $\frac{1}{4}$, which, when set to a strong fire, evaporates after the same manner as in an *Æolipile*, and vents it self at the smaller hole at the mouth in a constant blast, blowing the fire so strongly that it is very audible, and makes a sensible impression in that part of the fire where the blast lights, as I found by experience *May* the 26. 1680. After the Lord of *Essington*, or his *Deputy* or *Bayliff*, has driven the goose round the fire (at least 3 times) whilst this *Image* blows it, he carrys it into the *Kitchin* of *Hilton-Hall*, and delivers it to the *Cook*, who having dressed it, the Lord of *Essington* or his *Bayliff*, by way of further service, brings it to the Table of the Lord paramount of *Hilton* and *Essington*, and receives a dish of meat, from the said Lord of *Hiltons* table, for his own Mess. Which service was performed about 50 years since, by *James Wilkinson* then Bayliff of Sr *Gilbert Wakering*, the Lady *Townsend* being Lady

[x] *Henr. de Knyghton Canon of Leycester. de Eventibus Angl. Lib.* 1. *cap.* 12. [y] *Simeon. Dunelmensis Hist. de gestis Regum Angl. in An.* 1057.

of the Manor of *Hilton*, *Tho. a Stokes* and *John. a Stokes* brothers, both living *An.* 1680. then being preſent.

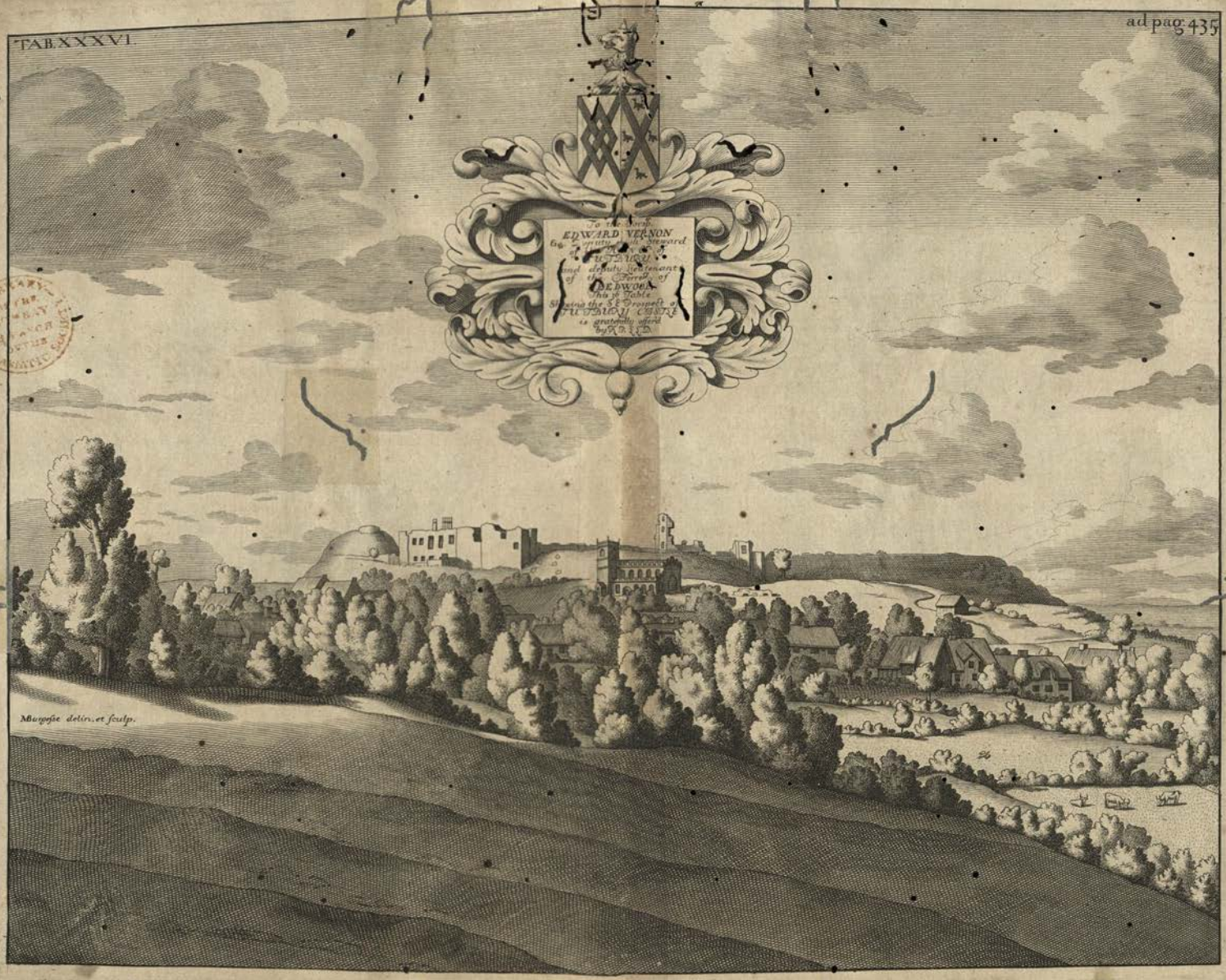
66. At *Abbots*, or now rather *Pagets Bromley*, they had alſo within memory, a ſort of ſport, which they celebrated at *Chriſtmas* (on *New-year*, and *Twelft-day*) call'd the *Hobby-horſe dance*, from a perſon that carryed the image of a *horſe* between his leggs, made of thin boards, and in his hand a *bow* and *arrow*, which paſſing through a *hole* in the *bow*, and ſtopping upon a *ſholder* it had in it, he made a *ſnapping* noiſe as he drew it to and fro, keeping time with the *Muſick:* with this *Man* danced 6 others, carrying on their ſhoulders as many *Rain deers heads*, 3 of them painted *white*, and 3 *red*, with the *Armes* of the cheif families (viz. of *Paget*, *Bagot*, and *Wells*) to whom the revenews of the *Town* cheifly belonged, depicted on the *palms* of them, with which they danced the *Hays*, and other *Country* dances. To this *Hobby-horſe dance* there alſo belong'd a *pot*, which was kept by turnes, by 4 or 5 of the *cheif* of the *Town*, whom they call'd *Reeves*, who provided *Cakes* and *Ale* to put in this *pot*; all people who had any kindneſs for the good intent of the Inſtitution of the *ſport*, giving pence a piece for themſelves and families; and ſo *forraigners* too, that came to ſee it: with which Mony (the charge of the *Cakes* and *Ale* being defrayed) they not only repaired their *Church* but kept their *poore* too: which *charges* are not now perhaps ſo cheerfully boarn.

67. It ſeems too, to be pretty certain that the *Town* or *Caſtle* of *Cheſterton under Lyme*, as Mr *Camden* calls it, given by King *John* to the laſt *Randall* E. of *Cheſter*, muſt be a place of note before the *Conqueſt*, it goeing to decay as long agoe as the Reigne of King *Hen.* 3. when the Earle of *Lancaſter* built another near by, in the midſt of a great poole, which he calld the *New-Caſtle*, that gave original (no doubt) to the *Towne* of that *Name* cloſe by it: whereof yet there is now almoſt as little remaining as of the *Walls* of *Cheſterton*, which were ſo firmly built, that as Mr *Camden*[z], and Mr *Erdeſwick*[a] both owne, there remain'd ſo much of the rubbiſh of them in their days, that it might be perceived thereby, that they were of a marvellous thickneſs: but all was gone before I came there, nothing now being to be ſeen but ſome faint footſteps of them, in the place where the *mark* is ſet in the *Map*. Nor is there much more of the *New-Caſtle* in the poole, tho' the *Town* near by be grown conſiderably large, being govern'd by a *Mayor* and ſending *Burgeſſes* to

[z] *Camden's Britannia in Staffordſh.* [a] *Mr Sampſon Erdeſwick's view of Staffordſhire, in Cheſterton.*

Parliament,

ad pag. 435


To the truly
EDWARD VERNON
Esq; Master Steward
&c. of the Honour
of
PUTTENEY
and deputy Lieutenant
of the County of
SURREY
This Table
Shewing the South Prospect of
PUTTENEY CASTLE
is gratefully offer'd
by
Mr. Rocque
Burgesse delin. et sculp.

Parliament, and flouriſhing reaſonably well to this very day; yet had certainly its *original* from this decayed *Caſtle*, there being no account of any ſuch *Town*, as Mr *Erdeſwick* acquaints us, in *Doomſday book*[a], or any other writings relating to this *County*, before the building of that *new Caſtle*.

68. Quickly after the Conqueſt, *Henry de Ferrars* a noble man of *Normandy* (as Mr *Camden* ſtiles him[c]) who came in with Duke *William*, and had large poſſeſſions allotted him in this *County*, built *Tutbury Caſtle*, upon that hill of *Alabaſter* where it now ſtands, which continued in his family till *Robert de Ferrars* Earl of *Darby* (after pardon obtain'd for a former rebellion) revolted a ſecond time and joyned with *Simon Montford* againſt King *Henry* the *third*, by whom being taken priſoner he was fined for his offence 50000*l Sterling* (a vaſt Summ in thoſe days) to be paid *ſimul & ſemel in uno die*, ſc. *in quindena Joh. Bap.* which fine the *King* gave to his ſon *Edmund* Earl of *Lancaſter*; Earle *Robert* obliging himſelf upon *non* paiment, to forfeit all his lands except *Chartley* in *Staffordſhire*, and *Holbroc* in *Darbyſhire*, to the ſaid *Edmund*[d]: which (becauſe ſuch a Summ could then by no means be raiſed) was accordingly done; and ſo *Tutbury* came to the family of *Lancaſter*, and at length to be the head ſeat of the *Dutchy*, in which it flouriſh't till the rebellion of *Thomas* Earle of *Lancaſter*, *An.* 1322, *temp. Edw.* 2. who fortifyed it againſt the King, but could not hold it; when, as Mr *Erdeſwick* thinks, this firſt *Caſtle* was brought to decay, and not reedifyed till it came into the poſſeſſion of *John* of *Gaunt*, who built the preſent Caſtle, walling it on all ſides but one, where the hill is ſo ſteep that it needed no ſuch fence[e]: from whoſe time it continued in ſome tolerable condition till the late *civil warr*, *temp. Car.* 1. when it was taken and for the moſt part demoliſh't by the *Rebells*, as may be ſeen by the ruins *Tab.* 36. it remaining much in the ſame condition they left it, to this very day.

69. During the time of which ancient Earls and Dukes of *Lancaſter*, who were ever of the blood *Royal*, great men in their times, had their abode, and kept a liberal *hoſpitality* here, at their *Honor* of *Tutbury*, there could not but be a general concourſe of people from all parts hither; for whoſe diverſion all ſorts of *Muſicians* were permitted likewiſe to come, to pay their *ſervices*: amongſt whom (being numerous) ſome quarrels and diſorders now and then ariſing, it was found neceſſary after a while they ſhould be brought under rules, divers *Laws* being made

[a] *Ibidem in Newcaſtle.* [c] *Camden's Britannia in Staffordſh.* [d] *Erdeſwick's view of Staffordſh. in Tutbury.* [e] *Ibidem.*

for the better regulating of them, and a *Governour* appointed them by the name of a *King*, who had ſeveral *Officers* under him to ſee to the execution of thoſe *Laws*, full power being granted them to apprehend and arreſt any ſuch *Minſtrells* appertaining to the ſaid *Honor*, as ſhould refuſe to doe their *ſervices* in due manner, and to conſtrain them to doe them: as appears by the *Charter* granted to the ſaid *King* of the *Minſtrells*, by *John* of *Gaunt* King of *Caſtile* and *Leon*, and Duke of *Lancaſter*, bearing date the 22 of *Auguſt* in the 4 year of the raigne of King *Richard* the ſecond, entituled, *Carta le Roy de Miniſtrelx*, which being written in old *French*[f], I have here tranſlated, and annext it to this *diſcourſe*, for the more univerſal *notoriety* of the thing, and for *ſatisfaction* how the power of the King of the *Minſtrells* and his *Officers* is founded: which take as follows.

JOHN *By the Grace of God King of* Caſtile *and* Leon, *Duke of* Lancaſter, *to all them who ſhall ſee or hear theſe our* Letters *greeting. Know ye we have ordained conſtituted and aſſigned to our well beloved the* King *of the* Minſtrells *in our* Honor *of* Tutbury, *who is, or for the time ſhall be, to apprehend and arreſt all the* Minſtrells *in our ſaid* Honor *and* Franchiſe, *that refuſe to doe the* Services *and* Minſtrelſy *as appertain to them to doe from ancient times at* Tutbury *aforeſaid, yearly on the days of the* Aſſumption *of our* Lady: *giving and granting to the ſaid* King *of the* Minſtrells *for the time being, full power and commandement to make them reaſonably to juſtify, and to conſtrain them to doe their* Services, *and* Minſtrelſies, *in manner as belongeth to them, and as it hath been there, and of ancient times accuſtomed. In witneſs of which thing, we have cauſed theſe our* Letters *to be made* Patents. *Given under our* privy Seal *at our Caſtle of* Tutbury *the* 22 *day of* Aug. *in the* 4th. *year of the raigne of the moſt ſweet King* Richard *the ſecond.*

70. Upon this, in proceſs of time the *defaulters* being many, and the *amercements* by the *Officers* perhaps not ſometimes over reaſonable; concerning which, and other matters, *controverſies* frequently ariſing: it was at laſt found neceſſary, that a *Court* ſhould be erected to hear *plaints*, and determine *Controverſies*, between party and party, before the *Steward* of the *Honor*, which is held there to this day on the morrow after the *Aſſumption* being the 16th. of *Aug.* on which day they now alſo doe all the *ſervices* mentioned in the above ſaid *grant*; and have the *Bull* due to them, anciently from the *Prior* of *Tutbury*, now from the Earle of *Devon*; whereas they had it formerly on the

[f] *D. Gulielmi Dugdale Monaſt. Angl. vol. 2. p. 355.*

aſſumption

assumption of our *Lady*, as appears by an *Inspeximus* of King *Henry* the sixt, relating to the *Customs* of *Tutbury*, where amongst others, this of the *Bull* is mention'd in these words. *Item est ibidem quædam consuetudo quod* Histriones *venientes ad matutinas in festo* assumptionis *beatæ* Mariæ, *habebunt unum* Taurum *de* Prior *de* Tuttebury, *si ipsum capere possunt citra aquam* Dove *propinquiorem* Tuttebury; *vel* Prior *dabit eis* xl^d^. *pro quâ quidem consuetudine dabuntur* domino *ad dictum festum annuatim* xx^d^. i. e. that there is a certain custom belonging to the *Honor* of *Tutbury*, that the *Minstrells* who come to *Matins* there on the feast of the *Assumption* of the *blessed Virgin*, shall have a *Bull* given them by the *Prior* of *Tutbury*, if they can take him on this side the River *Dove* which is next *Tutbury*; or else the *Prior* shall give them xl^d^. for the enjoyment of which *custom* they shall give to the *Lord* at the said *feast*, yearly xx^ds^.

71. Thus I say the services of the *Minstrells* were performed, and *Bull* enjoyed, anciently on the feast of the *Assumption*; but now they are done, and had, in the manner following, on the *Court* day or *morrow* of the *assumption* being the 16 of *August*, what time all the *Minstrels* within the *Honor* come first to the *Bayliffs* house of the *Manor* of *Tutbury* (who is now the Earl of *Devonshire*) where the *Steward* for the *Court* to be holden for the King, as Duke of *Lancaster* (who is now the Duke of *Ormond*) or his deputy meeting them, they all goe from thence to the parish Church of *Tutbury*, two and two together, *Musick* playing before them, the King of the *Minstrells* for the year past walking between the *Steward* and *Bayliff*, or their deputies; the four *Stewards* or under *Officers* of the said King of the *Minstrells*, each with a white *wand* in their hands, immediately following them; and then the rest of the company in order. Being come to the Church, the *Vicar* reads them divine service, chusing *Psalms* and *Lessons* suitable to the occasion: the *Psalmes* when I was there *An.* 1680. being the 98. 149. 150; the *first Lesson* 2. *Chron.* 5. and the *second*, the 5. *chap.* of the *Epistle* to the *Ephesians*, to the 22 verse. For which service every *Minstrel* offered one penny, as a due always a paid to the *Vicar* of the Church of *Tutbury*, upon this Solemnity.

72. Service being ended, they proceed in like manner as before, from the Church to the *Castle-hall* or *Court*, where the *Steward* or his deputy taketh his place, assisted by the *Bayliff* or his deputy, the King of the *Minstrells* sitting between them; who is to oversee that every *Minstrell* dwelling within the *Ho-*

[s] *Ibidem.*

nor and making default, ſhall be preſented and amerced: which that he may the better doe, an *O yes* is then made by one of the *Officers* being a *Minſtrel*, 3 times, giving notice by direction from the *Steward* to all manner of *Minſtrells* dwelling within the *Honor* of *Tutbury*, *viz.* within the *Counties* of *Stafford*, *Darby*, *Nottingham*, *Leiceſter* and *Warwick*, owing ſuit and ſervice to his Majeſties *Court* of *Muſick* here holden as this day, that every man draw near and give his attendance upon pain and peril that may otherwiſe enſue, and that if any man will be arrayned of *ſuit* or *plea*, he or they ſhould come in, and they ſhould be heard. Then all the *Muſicians* being call'd over by a *Court-roll*, two *Juries* are impannell'd, out of 24 of the ſufficienteſt of them, 12 for *Staffordſhire*, and 12 for the other *Counties*; whoſe *names* being deliver'd in *Court* to the *Steward* and call'd over, and appearing to be full *Juries*, the *Foreman* of each is firſt ſworn, and then the reſidue, as is uſual in other *Courts*, upon the holy *Evangeliſts*.

73. Then to move them the better to mind their duties to the King, and their own good; the *Steward* proceeds to give them their charge: firſt commending to their conſideration the original of all *Muſick*, both *Wind* and *ſtring Muſick*, the antiquity and excellency of both, ſetting forth the *force* of it upon the *affections*, by divers examples; how the uſe of it has always been allowed (as is plain from *holy writ*) in prayſing and glorifying God; and the *skill* in it always eſteemed ſo conſiderable, that it is ſtill accounted in the *Schooles* one of the *liberal Arts*, and allowed in all Godly Chriſtian *Common-wealths*; where by the way he commonly takes notice of the *Statute*, which reckons ſome *Muſicians* amongſt *Vagabonds* and *Rogues*[h], giving them to underſtand that ſuch *Societies* as *theirs*, thus legally founded and govern'd by *laws*, are by no means intended by that *Statute*, for which reaſon the *Minſtrells* belonging to the Manor of *Dutton* in the *County Palatine* of *Cheſter* are expreſſly excepted in that *Act*[i]. Exhorting them upon this account (to preſerve their reputation) to be very carefull to make choiſe of ſuch men to be *Officers* amongſt them, as fear God, are of good life and converſation, and have knowledg and ſkill in the practiſe of their *Art*. Which charge being ended, the *Jurors* proceed to the *Election* of the ſaid *Officers*, the *King* being to be choſen out of the 4 *Stewards* of the preceding year, and one year out of *Staffordſhire*, and the other out of *Darbyſhire* interchangeably: and the 4 *Stewards* two of them out of *Staffordſhire*, and two out of

[h] *Joſeph Keble's Statutes at large. 39. of Eliz. chap. 4. §. 2.* [i] *Ibidem. §. 10.*

Darby-

Derbyſhire; 3 being choſen by the *Jurors*, and the 4th by him that keeps the *Court*, and the deputy *Steward* or *Clerk*.

74. The *Jurors* departing the *Court* for this purpoſe, leave the *Steward* with his *aſſiſtants* ſtill in their places, who in the mean time make themſelves merry with a *banquet*, and a noiſe of *Muſicians* playing to them, the old *King* ſtill ſitting between the *Steward* and *Bayliff* as before: but returning again after a competent time; they preſent firſt their cheifeſt *Officer* by the name of their *King*; then the old *King* ariſing from his place, deliv'reth him a little white *wand* in token of his *Soveraignty*, and then taking a *cup* fill'd with *Wine* drinketh to him, wiſhing him all joy and proſperity in his *Office*. In the like manner doe the old *Stewards* to the new, and then the old *King* riſeth, and the new taketh his place, and ſo doe the new *Stewards* of the old, who have full power and authority by virtue of the Kings *Stewards* warrant, directed from the ſaid *Court*, to levy and diſtrain in any *City*, *Town Corporate*, or in any place within the Kings dominions, all ſuch *fines* and *amercements* as are inflicted by the ſaid *Juries* that day upon any *Minſtrells*, for his or their offences, committed in the breach of any of their ancient *orders*, made for the good rule and goverment of the ſaid *Society*. For which ſaid *fines* and *amercements* ſo diſtrained, or otherwiſe peaceably collected, the ſaid *Stewards* are accountable at every *Audit*: one moyety of them going to the Kings Majeſty, and the other the ſaid *Stewards* have, for their own uſe.

75. The *Election*, &c. being thus concluded, the *Court* riſeth, and all perſons then repair to another fair room within the *Caſtle*, where a plentifull dinner is prepared for them, which being ended; the *Minſtrells* went anciently to the *Abbey* gate, now to a little barn by the *Town* ſide, in expectance of the *Bull* to be turned forth to them, which was formerly done (according to the *Cuſtom* above mention'd) by the *Prior* of *Tutbury*, now by the Earle of *Devonſhire*: which *Bull*, as ſoon as his *horns* are cut off, his *Ears* cropt, his *taile* cut by the ſtumple, all his *body* ſmeared over with *Soap*, and his *noſe* blown full of beaten pepper; in ſhort, being made as mad as 'tis poſſible for him to be; after Solemn *Proclamation* made by the *Steward*, that all manner of perſons give way to the *Bull*, none being to come near him by 40 foot, any way to hinder the *Minſtrells*, but to attend his or their own *ſafeties*, every one at his perill: He is then forthwith turned out to them (anciently by the *Prior*) now by the Lord *Devonſhire* or his deputy, to be taken by them and none other, within the *County* of *Stafford* between the time of his being turned out to them, and the ſetting of the *Sun* the ſame day:

day: which if they cannot doe, but the *Bull* eſcapes from them untaken, and gets over the River into *Darbyſhire*, he remains ſtill my Lord *Devonſhires* bull: but if the ſaid *Minſtrells* can take him, and hold him ſo long, as to cutt off but ſome ſmall matter of his *hair*, and bring the ſame to the *Mercat* croſs in token they have taken him, the ſaid *bull* is then brought to the *Bayliffs* houſe in *Tutbury*, and there coller'd and roap't, and ſo brought to the *Bull-ring* in the high-ſtreet, and there bait'd with doggs: the firſt courſe being allotted for the *King*; the ſecond for the *Honor* of the *Towne*; and the third for the King of the *Minſtrells*. Which after it is done, the ſaid *Minſtrells* are to have him for their owne, and may ſell, or kill and divide him amongſt them, according as they ſhall think good.

76. And thus this *Ruſtick-ſport* which they call the *Bull-running*, ſhould be annually performed by the *Minſtrells* only, but now a days they are aſſiſted by the promiſcuous multitude, that flock hither in great numbers, and are much pleaſed with it, tho' ſometimes through the emulation in point of *manhood*, that has been long cheriſh't between the *Staffordſhire* and *Darbyſhire* men, perhaps as much miſcheif may have been done in the triall between them, as in the *Jeu de Taureau* or *Bull-fighting* practiſed at *Valentia*, *Madrid*, and many other places in *Spain*[k], whence perhaps this our Cuſtom of *Bull-running* might be derived, and ſet up here by *John* of *Gaunt* who was King of *Caſtile* and *Leon*, and Lord of the *Honor* of *Tutbury*; for why might not we receive this ſport from the *Spanyards*, as well as they from the *Romans*, and the *Romans* from the *Greeks*? wherein I am the more confirm'd, for that the Ταυροκαθαψίων ἡμέρα amongſt the *Theſſalians*, who firſt inſtituted this *game*, and of whom *Julius Cæſar* learned it, and brought it to *Rome*, were celebrated much about the ſame time of the year, our *Bull-running* is, viz. *pridie Idus Auguſti* on the 12 of *Auguſt*[l]; which perhaps *John* of *Gaunt* in honor of the *Aſſumption* of our *Lady* being but 3 days after, might remove to the 15; as after ages did (that all the *Solemnity*, and *Court* might be kept on the ſame day, to avoid further trouble) to the 16 of *Auguſt*.

77. Nor is this the only remarkable *Cuſtom* that anciently belong'd to this *Honor* of *Tutbury*, for I find that Sr *Philip de Somervile* 10 of *Edw.* 3. held the Manors of *Whichnovre*, *Sireſcot*, *Ridware*, *Netherton*, and *Cowlee*, all in *Com. Stafford* of the Earles of *Lancaſter* Lords of the *Honor* of *Tutbury*, by theſe memorable *Services*, viz. By two ſmall feet[†]: That is to ſay, when

[k] *Fran. Willughby's voyage through Spain. p.* 499. [l] *Humph. Prideaux in notis ad Marmor. Taurocathapſion. inter Marmora Oxonienſ.* [†] *E. Rot. Membr. penes* Joh. Turton *de* Alrewas *in Com. Staff.*

other

"other Tenants pay for Reliefe one whole Knight's fee, One hun-
"dred Shillings, he the ſaid Sir *Philip* ſhall pay but Fifty ſhillings:
"and when Eſcuage is aſſeſſed throghe owtt the land; or to Ayde
"for to make th' eldeſt ſonne of the Lord, Knyght; or for to mar-
"ry the eldeſt daughter of the Lord, the ſaid Sir *Philip* ſhall pay
"bott the motye of it that other ſhall paye. Nevertheleſs, the
"ſaid Sir *Philip* ſhall fynde, meyntienge, and ſuſteingne one
"Bacon flyke, hanging in his Hall at *Whichenovre*, redy arrayede
"alltimes of the yere, bott in Lent; to be given to everyche
"mane, or woman married, after the day and the yere of their
"mariage be paſſed: and to be gyven to everyche mane of Re-
"ligion, Archbiſhop, Biſhop, Prior, or other Religious: and
"to everyche Preeſt, after the year and day of their profeſſion
"finiſhed, or of their dignity reſeyved, in forme followyng; when-
"ſoever that ony ſuche byforenamed, wylle come for to enquire
"for the Baconne, in there own perſone; or by any other for them,
"they ſhall come to the Baillyfe, or to the Porter of the Lordſhip
"of *Whichnovre*, and ſhall ſay to them, in the manere as enſewethe;

Bayliffe, or Porter, I doo you to knowe; that I am come for my ſelf [or, if he be come for any other, ſhewing for whome] to demaunde one Bacon flyke, hanging in the Halle, of the Lord of Whichenovre, **after the forme thereunto belongyng.**

"After which relacioun, the Baillyffe or Porter ſhall aſſign a day
"to him, upon promyſe, by his feythe to retourne; and
"with him to bryng tweyne of his neighbours. And, in the
"meyn tyme, the ſaid Bailliffe ſhall take with him tweyne of the
"Freeholders of the Lordſhip of *Whichenovre*; and they three,
"ſhall go to the Manoir of *Rudlowe*, belongynge to *Robert Knyght-*
"*leye*, and there ſhall ſomon the forſeid *Knyghteley* or his
"Baillyffe; commanding him, to be redy at *Whichenovre*, the
"day appoynted, at pryme of the day, withe his Caryage;
"that is to ſay, a Horſe and a Sadylle, a Sakke, and a Pryke,
"for to convey and carye the ſaid Baconne, and Corne, a
"journey owtt of the Countee of *Stafford*, at hys coſtages. And
"then the ſayd Baillyffe, ſhall, with the ſayd Freeholders, ſo-
"mone all the Tenaunts of the ſaid Manoir, to be ready at the
"day appoynted, at *Whichnovre*, for to doo and perform the ſer-
"vices which they owe to the Baconne. And, at the day aſſign'd,
"all ſuch as owe ſervices to the Baconne, ſhall be ready at the
"Gatte of the Manoir off *Whichnovre*, frome the Sonne-ryſing to
"None, attendyng and awatyng for the comyng of hym, that
"fetcheth the Baconne. And, when he is comyn, there ſhall be
"delivered to hym and hys felowys, Chapeletts; and to all thoſe
"whiche ſhall be there, to do their ſervices deue to the Baconne.

"And they ſhall lede the ſeid Demandant wythe Trompes and "Tabours, and other maner of Mynſtralſeye, to the Halle-dore, "where he ſhall fynde the Lord of *Whichenovre*, or his Steward, "redy to deliver the Baconne, in this manere.

"78. He ſhall enquere of hym, whiche demandeth the Baconne, "yf he have brought tweyn of hys Neghbors with hym. Whiche "muſt anſwere; *They be here ready.* And then the Steward ſhall "cauſe thies two Neighbours to ſwere, yf the ſeyd Demaundaunt "be a weddyt man; or haye be a man weddyt: and, yf ſythe his "Marriage, one yere and a day be paſſed: And, yf he be a free "man, or a villeyn. And yf hys ſeid neghbours make Othe, that "he hath for hym all thies three poynts reherſed; then ſhall the "Baconne be take downe, and broghte to the Hall-dore; and "ſhall there be layd upon one halfe a Quarter of Wheatte; & upon "one other of Rye. And he that demandeth the Baconne ſhall "kneel upon his knee; and ſhall hold his right hand upon a booke; "which booke ſhall be layde above the Baconne, and the Corne; "and ſhall make Othe, in this manere.

Here ye, Sir Philippe de Somervile, **Lord of** Whichenovre, **mayntener and gyver of this Baconne; That I** A. **ſithe I wedded** B. **my wife, and ſythe I hadd hyr in my kepyng, and at my wylle by a yere and a day, after our Mariage; I wold not have chaunged for none other; fairer, ne fowler; richer ne pourer; ne for none other deſcended of greater lynage; ſlepyng, ne waking, at noo tyme. And yf the ſeyd** B. **were ſole, and I ſole, I would take her to be my wyfe, before alle the wymen of the worlde; of what condiciones ſoever they be; good or evylle, as helpe me God and hys Seyntys, and this fleſhe, and all fleſhes.**

"And hys neighbors ſhall make Othe, that they truſt veraly he "hath ſaid truly. And, yff it be founde by his neighbours, before-"named, that he be a Free-man; there ſhall be delyvered to him "half a Quarter of Wheate, and a Cheeſe. And, yf he be a villeyn, "he ſhall have half a Quarter of Rye, wythoutte Cheeſe. And "then ſhall *Knyghtleye*, the Lord of *Rudlowe**, be called for, to "carrye all thies thynges, to fore reherſed: And the ſaid Corne "ſhall be layd upon one horſe, and the Baconne above ytt: and "he to whom the Baconne apperteigneth, ſhall aſcend upon his "Horſe; and ſhall take the Cheeſe before hym, yf he have a "Horſe: And, yf he have none, the Lord of *Whichenovre* ſhall "cauſe him have one Horſe and Sadyll, to ſuch time as he be paſ-"ſed hys Lordſhippe: and ſo ſhalle they departe the Manoir of "*Whichenovre*, with the Corne and the Baconne, tofore hym that

* *Rudlow ſeems to be that at Taten-hill Wood-Lane near the houſe of Joſeph Sutton as Tenant. An.* 1686.

hath

"hath wonne itt, with Trompets, Tabouretts, and other manoir
"of mynſtralce. And, all the Free-Tenants of *Whichenovre* ſhall
"conduct hym, to be paſſed the Lordſhip of *Whichenovre*. And
"then ſhall all they retorne; except hym, to whom apperteign-
"eth to make the carryage and journey, wythowtt the Countye
"of *Stafford*, at the Coſtys of hys Lord of *Whichenover*. And,
"yff the ſayd *Robert Knightley*, do not cauſe the Baconn and
"Corne, to be conveyed, as is reherſed; the Lord of *Whichenovre*
"ſhall do it be carryed, and ſhall dyſtreigne the ſeyd *Ro-*
"*bert Knyghtley* for his defaulte, for one hundred ſhyllings, in
"his Manoir of *Rudlowe*; and ſhalle kepe the diſtres, ſo takyn,
"irrepleviſable.

"79. Moreover, the ſaid Sir *Philippe* holdeth of his Lorde, th'
"Erle, the Manoir of *Briddeſhalle*, by thies ſervices; that, att
"ſuch tyme, that hys ſayd Lorde holdeth hys Chryſtemes at
"*Tutbury*, the ſeyd Sir *Phelippe* ſhall come to *Tutbury*, upon Chry-
"ſtemaſſe Evyn; and ſhall be lodged yn the Town of *Tutbury*,
"by the Marſhall of the Erlys houſe: and upon Chryſtymeſſe-day,
"he himſelf, or ſome othyr Knyght (his Deputye) ſhall go to the
"Dreſſour; and ſhall ſewe to his Lordys meeſe: and then ſhall
"he kerve the ſame mett to hys ſayd Lord: And thys ſervice ſhall
"he doo aſwell at Souper, as at Dynner: and when hys Lord
"hath etyn; the ſaid Sir *Philippe* ſhall ſit downe, in the ſame
"place, wheir hys Lord ſatt: and ſhalle be ſerved att hys Table,
"by the Steward of th' Erlys houſe. And, upon Seynt, *Stevyn-day*,
"when he haith dyned, he ſhall take leve of hys Lorde, and ſhall
"kyſſe hym: and, for hys ſervice he ſhall nothing take, ne no-
"thing ſhall gyve. And all thyes ſervices, tofore-reherſed, the
"ſeyd Sir *Philippe* hath doo, by the ſpace of xlviii. yeres; and hys
"anceſtors byfore hym, to hys Lordys, Erlys of *Lancaſtre*. *Item*,
"the ſaid Sir *Philippe* holdeth of his ſeid Lord, th' Erle, his Ma-
"noirs of *Tatenhull* and *Drycotte*, en percenerye, by thies ſervices;
"that the ſeid Sir *Phelippe*, or his Atturney for hym, ſhall come to
"the Caſtell of *Tutburye*, upon Seynt *Petyr* day, in *Auguſt*, which
"is called *Lammeſſe*; and ſhall ſhew the Steward, or Receiver, that
"he is come thither to hunt, and catch his Lord's Greeſe, at the
"coſtages of hys Lorde. Whereupon the Steward or the Receiver
"ſhall cauſe a Horſe and Sadylle to be deliveryd to the ſayd Sir
"*Phelippe*, the price Fifty ſhillings; or Fifty ſhillings in money,
"and one Hound; and ſhall pay to the ſaid Sir *Phelippe*, everyche
"day, fro the ſaid day of Seynt *Peter*, to *Holy Roode-day*, for hym-
"ſelf Two ſhillings ſix pence a day; and everyche day for his ſer-
"vant, and his Bercelett, during the ſayd time twelve pence. And
"all the Wood-maſters of the Foreſt of *Nedewode* and *Duffelde*,

"withe alle the Parkers and Foreſters, ſhall be commandyd to "awatte, and attend upon the ſayd Sir *Phelippe*, while ſeyde "Lord's Greeſe be takyn, in all places of the ſeyde Foreſts, as "upon their Maſter, during the ſaid tyme: And the ſaid Sir *Phe-* "*lippe*, or his Attorny, ſhall deliver to the ſaid Parkers, or Fore- "ſters, that ſhall belonge to their Lordys Lardere, commandyng "them to convey itt to the Erlys Lardyner, abyding at *Tutbury*: "and with the remenant, the ſeyd Sir *Phelippe* ſhall do hys pleſoure. "And, upon *Holy-Rood-day* the ſayd Sir *Phelippe* ſhall returne to "the Caſtell of *Tutbury*, upon the ſaid Horſe, with his Bercelett; "and ſhall dyne with the Steward or Receyver: and after Dyn- "ner he ſhall delyver the Horſe, Sadylle, and Bercelett to the Ste- "ward or Receyvour; and ſhall kyſſe the Porter and depart[m].

80. There was much ſuch another *Cuſtom* as that of the Bacon, alſo inſtituted at the *Priory* of *Dunmow* in *Eſſex*, by *Robert Fitzwalter* a potent Baron of the Realm *Temp. Hen.* 3. the Summe whereof was contain'd in this old *diſtic.* viz,

That He that repents him not of his Mariage in a year and a day either ſleeping or waking,
May lawfully goe to Dunmow and fetch a gammon of Bacon[n].

or elſe a flych, as appears by the *Regiſter* of the ſaid *Abbey* ſome enjoyed; but neither, unleſs they would *ſwear* kneeling upon two hard pointed ſtones ſet in the *Priory* Church-yard for that purpoſe, before the *Prior* and *Covent*, and the whole *Towne*, in this forme

You ſhall ſwear by Cuſtom of Confeſsion,
If ever you made nuptial tranſgreſsion:
Be you either married man or wife,
By houſhold brawles or contentious ſtrife,
Or otherwiſe in bed, or at boord,
Offend each other in deed, or word;
Or ſince the pariſh *Clerk* ſaid *Amen*,
You wiſh't your ſelves unmarried agen:
Or in a twelve monethes time and a day
Repented not, in thought any way:
But continued true and juſt in deſire
As when you joyned hands in the holy quire.
If to theſe conditions without all feare,
Of your own accord you will freely ſweare,
A whole *Gammon* of *Bacon* you ſhall receive,
And bear it hence with love and good leave.
For this is our *Cuſtome* at *Dunmow* well known,
Though the pleaſure be ours, the *Bacon*'s your own[o].

81. The next conſiderable *antiquity* after the Caſtle of *Tutbury*,

[m] *Sr. Will. Dugdales Baronage of England, Tom.* 2. *p.* 106, 107, 108. [n] *Hiſtory of Robert Fitzwalter. Lond.* 1616. [o] *Ibidem in fine*

that

that I met with in this *County*, whereof there are yet ſome foot-ſteps remaining, is *Heyley* Caſtle, built upon a lofty rock with the very ſtone that was dugg forth the ditches, which was given to *Henry* de *Alditheleg*, as Mr *Camden* ſays, by *Harvey* Lord *Stafford*, *temp. Regis Johan.* when the whole Country ſeem'd in a manner to conſpire to make a great man, as may be ſeen by the *Copy* of confirmation made by *Hen.* 3. of all the *Lands* contributed by divers great men for the advancement of this *family*. Which *Henry* indeed ſeems to have built this *Caſtle*: but upon peruſal of the *Record*, I find they were the heirs of one *William* de *Bettelegh* or *Betley*, *qui dederunt totam terram de* Heylea *cum pertenentiis*, i. e. that gave the whole land of *Heyley* to this *Henry*; and that *Harvey* Lord *Stafford* gave only the land *quæ jacet ſub Caſtro de Heleghe*, that lay ſomewhere near under the *Caſtle*; as *Nicholas*, and not (as he ſays) *Theobald Verdun* gave *Alditheleg* it ſelf*, where alſo there ſeem to be the foot-ſteps of a *Caſtle*. built by ſome of this *family*, or of the *Verduns* before them. About this time the advowſon of the Church of *Penckridg* in this County, anciently *Pencriz*, ſetled before by King *Stephen* upon the Church of *Lichfield*†, being endowed with lands, and made *Collegiat*, by one *Hugo Huoſe*, was given by King *John* in the laſt of his reigne, to the Arch-Biſhops of *Dublin*, in whoſe *Dioceſs* it remains to this very day; which being a thing ſomewhat ſtrange, and known but to few how it came to paſs, for their better ſatisfaction I have here annext a *Copy* of King *Johns Charter* taken out of the *black book* of the ſaid Arch-Biſhops *Regiſtery* at *Dublin*, and ſent me by the Reverend and learned Mr *William King* Chancellor of St *Patricks*, which take as follows.

JOHANNES *Dei gratia* Rex Angl. *Dominus* Hibernie *Dux* Normanie & Aquitan. & *Com.* Andeg. *Archiepiſcopis, Epiſcopis, Abbatibus, Comitibus, Baron. Juſtic. Vicecom. Prepoſit. & omnibus Ballivis & fidelibus ſuis ſalutem. Sciatis nos conceſſiſſe & hac preſenti carta confirmaſſe venerabili Patri noſtro* Henrico *Dublin. Archiepiſcopo & ſucceſſoribus ſuis, terr. & tenement. ſubſcript. que habet ex dono* Hugon. Huoſe; *ſcil. Manerium de* Penkeriz *cum villa de* Cungrave, *& villa de* Culega, *& villa de* Wuolgareſton, *& villa de* Beſſecot, *& cum terra de* Duun *cum* feria *ejuſdem ville de* Penkeriz, *& cum omnibus ad predic. terr. & tenement. pertinen. ſicut carta ipſius* Hugonis Huoſe (*quam inde habet*) *rationabiliter teſtatur. Preterea conceſſimus de dono noſtro, intuitu Dei, & pro ſalute animæ noſtræ, & anteceſſorum, & ſucceſſorum noſtro-*

* *Simpſ. Erdeſwick's view of Staffordſh. in Audley.* † *D. Guliel. Dugdale Monaſt. Angl. vol.* 3 *p.* 235.

rum regum Angl. *dict. Archepiſcopo* Dublin. *& ſucceſſoribus ſuis advocationem Eccleſiæ de* Pencriz *cum pertinen. in perpetuum ita quod cum dicta Eccleſia vacare contigerit, dictus Archepiſcopus & ſucceſſores ſui eam cum pertinen. pro voluntate ſua poſſint ordinare. Quare volumus & firmiter precipimus quod predic.* Henricus *Dublin. Archiepiſcopus, & ſucceſſores ſui habeant & teneant predic. terr. & tenement, &* advocationem *dicte Eccleſiæ cum omnibus pertinentiis ſuis bene & in pace, libere & quiete, integre & plenarie cum omnibus libertatibus & liberis conſuetudinibus, ad predic. terr. & tenement. & predic.* advocationem *pertinen. ſicut predictum eſt. Teſtibus, Dominis P.* Wynton. *W.* Coventry, *Epiſ. Magiſtr.* Pando. Norwic. *Electo; & Abbate* Cirenceſt. Huberto *de* Burgo *Juſtic. noſtro* Angl; *Wide* Cireton; Ric. *de* Burgo; *Johanne* Ruſſelle. *Dat. per man. Magiſtri* Richardi *de* Mariſco *Cancellar. noſtr. apud* Dowvre, *tertio decimo die* Septembris, *Anno regni noſtri ſeptimo decimo*[q].

82. In ſhort, the *Hiſtory* of this *Church* ſtands thus, as well as I can diſcover it from the *Records* of *Lichfield* and *Dublin*, viz. it was firſt given, as I ſaid above, to the *Church* of *Lichfield*, by King *Stephen*; not long after being endowed with the lands mention'd in King *Johns* Charter, it was made *Collegiat*, having 4 *Chappells*, one whereof was ſtrangely loſt (viz. *Capella de* Canoto, *ſive* Cannock) *tempore Epiſcopi* Hugonis *de Novant* in the reigne of *Hen.* 2[r]. and not recoverd till the 2 of *Edw.* 1[s]. In the mean time being a free Chappel of the Kings, the *advowſon* of it was ſettled by King *John* upon the Arch-Biſhops of *Dublin*, and confirm'd to them by Pope *Alexander* the 4. *temp. Edw.* 1. the Arch-Biſhops of *Dublin* collating the *Prebends* as often as they fell, and holding the *Deanry* themſelves, upon account there was then no revenew annext to the *Deanry*, for the ſupport of any other, they ſhould give it to; in which poſture it ſtood for 30 years: wherefore the ſaid Pope *Alexander* upon the petition of the Arch-Biſhop then being, by his *Bull* bearing date at *Anagni* (the place of his birth) *Nov.* 11. *Pontif. ſui An.* 5. annext this *Deanry* to the Arch-Biſhoprick for ever[t]. Yet I find afterwards by a taxation of the *Prebendaries*, and other *Officers* belonging to this Church, that the *Dean* did enjoy the benefit of a *Prebend*: which *Taxation*, that the number and places of the *Prebends*, and the names of the *perſons*, that then held them, might be known, I have here annexed.

[q] *E Libro nigro in Regiſtrar. Reverendiſ. in Chriſto Patris D.* Franc. *Archiep.* Dub. 1. *fol.* 116. [r] *Ibidem. part.* 1. *fol.* 114. [s] *Ibid. part.* 1. *fol.* 31. *latere.* 2. [t] *Ibidem. part.* 2. *fol.* 10.

Taxatio

Taxatio *Præbendarum & Officiorum* apud *Pyncriche* exempt.

	lb.	s.	d.	lb.	s.	d.
Inprimis Prebenda *Decani* ——	1.	6.	8.	2.	0.	0.
Item Prebenda de *Copnall* —— *Trygram*	7.	0.	0.	10.	13.	4.
Item Prebenda de *Shariſull*-Fr. *Symmons* —	5.	0.	0.	6.	0.	0.
Item Prebenda de *Sutton-Richards* ——	4.	0.	0.	6.	13.	4
Item Prebenda de *Dunſtone-Tatton* ——	5. Marks			6.	6.	8.
Item Prebenda de *Penkrich-Elice* ——	2.	0.	0.	4.	0.	0.
Item Prebenda de *Congreiſe-Willowe* ——	5. Nobles			2.	6.	8.
Item Prebenda de *Longegrigge-Gardon* —	0.	8.	0.	0.	16.	0.
Item *Canonicus* reſidentiar. *abſque* Prebenda-*Webb* ——	2.	13	4.			
Item alter *Canonicus* ſilicet *reſidentiarius* ſine Prebenda —— *Gytton*	2.	13.	4			
Item Officium *Sacriſtæ*, Canonicus perpetuum eſt & Vicarius *Decani* in mortuariis & aliis caſualibus ——	3.	6.	8.			
Item *Officialis* Juriſdictionis peculiaris, & ad viſitandum *Comiſſarius* ſpecialis ——	prout 1°. ſubſcribitur.					
Item *Vicarii* reſidentes omnium dict. *Prebend.* quorum ſalaria ſunt bene diminuata[u].						

By which *Charter* and *taxation* it is eaſy to conclude, not only how this *Church* came to be in the *Dioceſs* of *Dublin*, but of what value it was whilſt in its flouriſhing condition. But how the *lands* came after to be alienated, whether by *fee-farmes* (as it ſeems moſt of the *Iriſh* Biſhopricks were) or otherwiſe, and how the *Juriſdiction* neglected; I liſt not to declare, it not becoming a *Natural Hiſtorian* either to enquire in *titles*, or make reflections on *Church* goverment, wherefore *manum de Tabula.*

83. Not long after this ſettlement of the Church of *Penckridg*, *Randall* the third, ſurnamed *Blundevill*, Earle of *Cheſter*, An. 1218. 2. *Hen.* 3. built the Caſtle of *Chartley* *, where he lay, ſays *Leland*, during the time of his building the Abbey of *Dieu la Creſs* [w]; but this ſure could not be, unleſs it were long in building, that *Abbey* being founded, as appears in the *Hiſtory* of it, *An.* 1214 [x]. before the *Caſtle*. And in the reigne of his Son King *Edw.* 1. *Walter de Longton* Biſhop of *Lichfield*, and Lord high Treaſurer of *England*, ſome ſay built, others repaired, *Eccleſhall* Caſtle; and the Manor of *Shoubrough* or *Shuckborough*, which before ſays *Leland*

[u] *In eodem Lib. nigro in Regiſtrar. D. Archiep. Dublin.* * *Tho. Mills Catalogue of Honor. p.* 570. [w] *Joh. Lelandi Itinerar. vol.* 7. [x] *D. Gul. Dugdali Monaſt. Angl. vol.* 1. *p.* 890.

be-

belong'd to one *Shuckborough* with the long beard, by whom it was given to the Miter of *Lichfield*[y]. Quickly after in the begin. of *Edw.2. Alveton* Caſtle ſeems to have been built by *Theobald de Verdun*, as may pretty plainly be collected from the *Annales* of *Croxden*. And not long after, in the latter end of the ſame Kings reigne, the goodly Caſtle of *Caverſwall* (as Mr *Erdeſwick* calles it) by Sr *William de Caverſwall*, it being all built of *Maſonry*, and ſo the *damms* of the *pooles* near by it, as was anciently expreſs't upon his monument in the Church, his *Epitaph* being this.

Caſtri *ſtructor eram*, *domibus foſſiſque* Cemento
Vivus dans operam, *nunc claudor in hoc monumento*[z].

which ſome body rendering in *Engliſh*

Sr William *of* Caverſwall *here lye I*,
Who built the Caſtle, *and made the pooles by*.

as the report goes, was thus *burleſqu'd* by another hand.

Sr William *of* Caverſwall *here you lye*,
Your Caſtle *is down*, *and your* pooles *are dry*.

as indeed they are, all but the deep *moat* about the *Caſtle*, in place whereof a fair houſe has been ſince built of ſquared ſtone, not altogether unlike a *Caſtellated manſion*, the walls about it being flank't with *hexangular Towers*, as in its proſpect here annext *Tab.* 37. it being at preſent the ſeat of that generous Gent. *William Jollife* Eſq; a cordial encourager of this *work*.

84. The original of *Terley*, and *Stourton* Caſtles, I could no where meet with, but beleive them both of good *Antiquity*; nor of that treble entrenchment on the South ſide of the *Watlingſtreet*, near *Frogg-Homer*, call'd *Knaves-Caſtle*, which yet is not all above 40 yards *diameter*, or 50 at moſt: in the middle whereof there is a round hill, now excavated, which for what uſe it has been (being ſo very ſmall) I cannot imagin. The *tradition* is, that this *heath* being formerly all *wood*, and much infeſted with *robberies*, here was a watch ſet to guard ſtrangers over it, for which the *paſſengers* allowed ſome ſmall gratuity. Others ſay that the *Robbers* themſelves harbour'd here, and that therefore it was call'd *Knaves-Caſtle*. Some other ſuch *Entrenchments* are alſo here and there ſtill in being, in ſeveral parts of the *Country*, without any

[y] *Joh. Lelandi. Itinerar. vol. 7.* [z] *D. Gul. Dugdali Monaſt. Angl. vol. 1. p. 913.*
[a] *Mr Sampſ. Erdeſwick's view of Staffordſh. in Caverſwall.*

building

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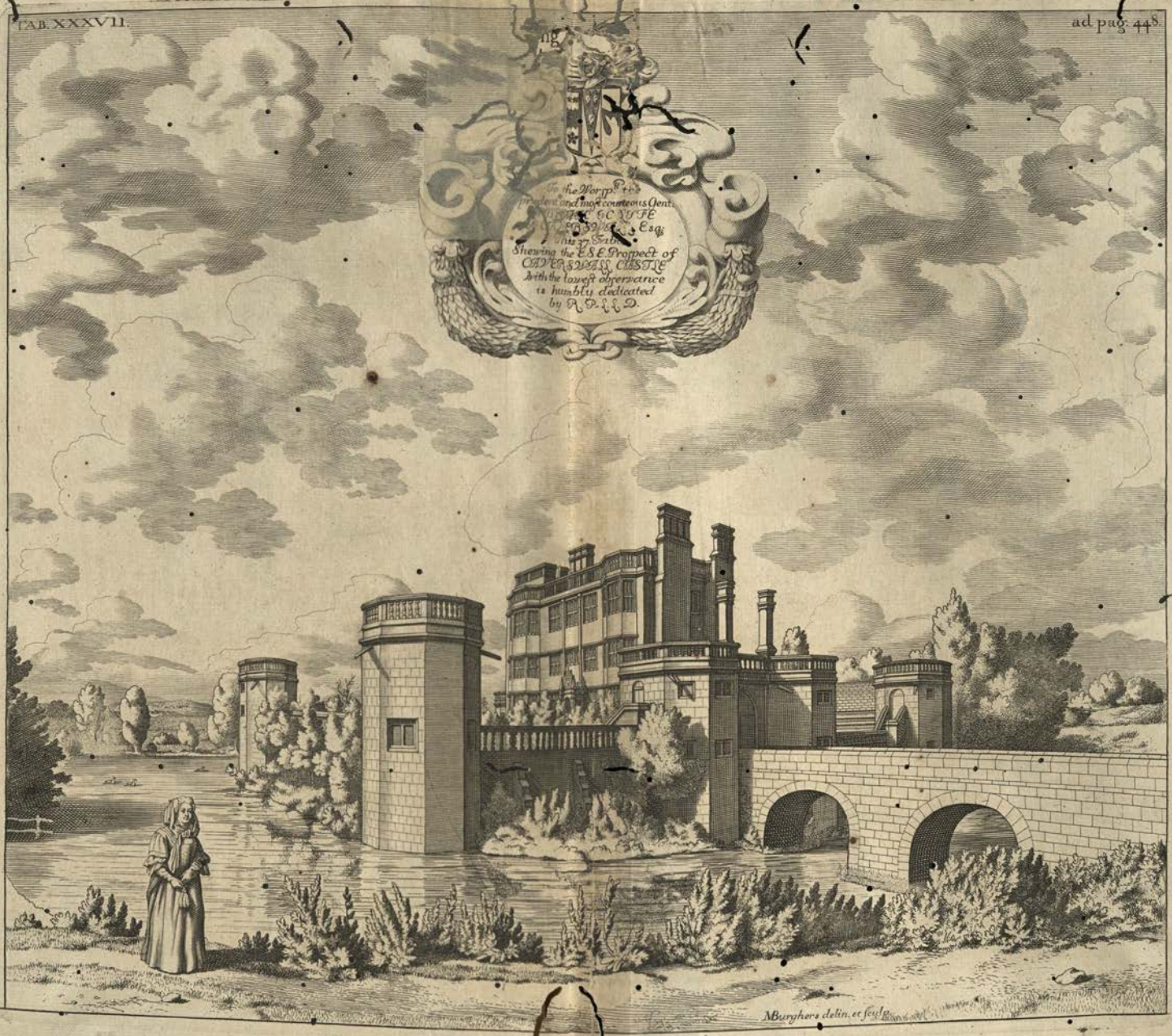

building now remaining within them, which I ſuppoſe were only the *caſtellat manſions* of ſome principal families (which were abſolutely neceſſary during the *Barons* warrs) now decayed and gone: ſuch as that call'd the *moats* near *Kinnerſton* in this *County*, but anciently *Rodhaſton*, incloſed with a double trench, the inner banks yet remaining very high, of a ſquare figure, each ſide about 50 paces long, the *corners* being much higher than the reſt, as if there had been round *Towers* or *baſtions* there: which was only the ſeat of *John* de *Sanderſted*, as appears by the entail of the Lordſhip of *Cheſterton* in the *County* of *Warwick* 9. *Edw.* 3. by the Kings ſpecial command, upon him and his heirs, in caſe *John* de *Warrewyk* the poſſeſſor of it dyed without iſſue [b].

85. About a quarter of a mile South of *Okeover* near the park-pale, I was alſo ſhewn a deep entrenchment of a ſquare figure, now call'd the *Hallſteds*, which I ſuppoſe might be likewiſe ſome *caſtellated manſion* in the *Barons* warrs, the *tradition* being, that it was anciently the ſeat of the family of *Cockain*; and there are others of the like kind at many other places: but theſe being but of a late date, in compariſon of the former, and ſcarce deſerving the name of *Antiquities*, I leave them to the conſideration of a more modern *Hiſtorian*, and ſhall content my ſelf with the mention but of one *Antiquity* more, which is the ſtone ſet up upon *Blore* heath in memory of the fall of *James* Lord *Audley*, ſlain juſt in that place, in the quarrel of *Hen.* 6. valiantly fighting for his *Soveraigne* againſt the Earle of *Salesbury*, which fight was long and bloody, no leſs then 2400 being ſlain upon the ſpott, Queen *Margaret* looking *on* all the while (as the tradition goes) from the tower of *Muckleſton* hard by: whence ſhe fled, ſays *Leland*, (the Victory falling upon the death of the Lord *Audley*, to the Earle of *Salesbury*) to *Eccleſhall* Church, by direction of *John Halſe*, alias *Hales* Biſhop of *Lichfield*, who cauſed her to lye there [c].

86. And this is all I have to offer the *Reader*, but that it ſhould have been remember'd *Chap.* 8. §. 54. that *Ralph Baſſet* of *Chedle* was cheif Juſtice of *England An.* 2. *Hen.* 1. his Son *Richard An.* 4. of the ſame King *Hen.* and that his grandchild *William* was alſo Juſtice *in Itinere*, 22 of *Hen.* 2. *Bertram* de *Verdun*, *eodem tempore*; and perhaps *Simon* de *Pateſhull* 7°. *Rich.* 1. & 1°. *Johannis* [d]. Nor muſt it be forgot, that one *Thomas Dalton* (as *Norton* tells us) had ſtore of the *Medicina rubra Philoſophorum*, or the *Elixir* of life, which he owned was left him for his ſervice by his *Maſter*, who was one of the *Canons* of *Lichfield*, that dyed *An.*

[b] *Sr William Dugdales Antiquities of Warwickſh. illuſtrated. p.* 375. [c] *Joh. Lelandi Itinerar. vol.* 7. [d] *Mr Sampſ. Erdeſwick's view of Staffordſh. in Blore. vid. etiam D. Gul. Dugdali Orig. Juridic. in Chronica ſerie* Cancellarior. *in dictis* An.

1477. *temp. Edw.* 4[e]. Which at last (after many long and [illegible] journeys; a large expence of time, and mony; and many other difficulties undergon in the mean time) concludes this *History of Staffordshire*: in the writing whereof, tho' I dare not think, much less can by any means assure the *Reader*, that I have made no *mistakes* in any of my *Relations*; yet I am inclined to beleive there are none very *material*, I am sure none *willfull*: wherefore I hope all *Readers* will deale so candidly with me, as only to reprove me calmly, for what is done amiss, which sort of *Chastisement* I shall cheerfully receive; sincerely promising never to offend in the like manner again, being pretty fully resolved, never to publish any more of these *Histories* (tho' I think I was never so fit as now) unless commanded by a *power* that I must no resist.

[e] *Vid. Ordinale Secretorum Tho. Norton. MS.* Laud. *in Bib. Bod. K.* 61. *p.* 14.

ERRATA.

PAG. 63. line 25. read *Conservatories*. p. 63. l. 27. r. $\frac{1}{10}$ part. p. 66. l. 4. r. *Iceland*. p. 69. l. 17. r. *Colanders*. p. 82. l. 34. for *Parabolical* r. *elliptical*. p. 152. l. 42. *dele* 6. p. 185. l. 36 r. *Conchites*. p. 196. l. 25. r. *Sculpture*. p. 198. l. 15. r. *Wolstanton*. p. 199. l. 16. r. somewhat. p. 200. l. penult. r. *Hollandicus*. p. 240. l. 12. r. ταλματιαῖοι. p. 263. l. 38. r. *Juvenci*. p. 264. l. penult. r. *Shamois*. p. 270. l. 7. r. the. p. 286. l. 24. r. 37. p. 340. l. 9. r. *Commonwealth*. p. 349. l. 13. r. hereby (as *Gerard* expounds it) p. 370. l 10. r. 10 *n*. p 424. l. 38. r. against.

FINIS.

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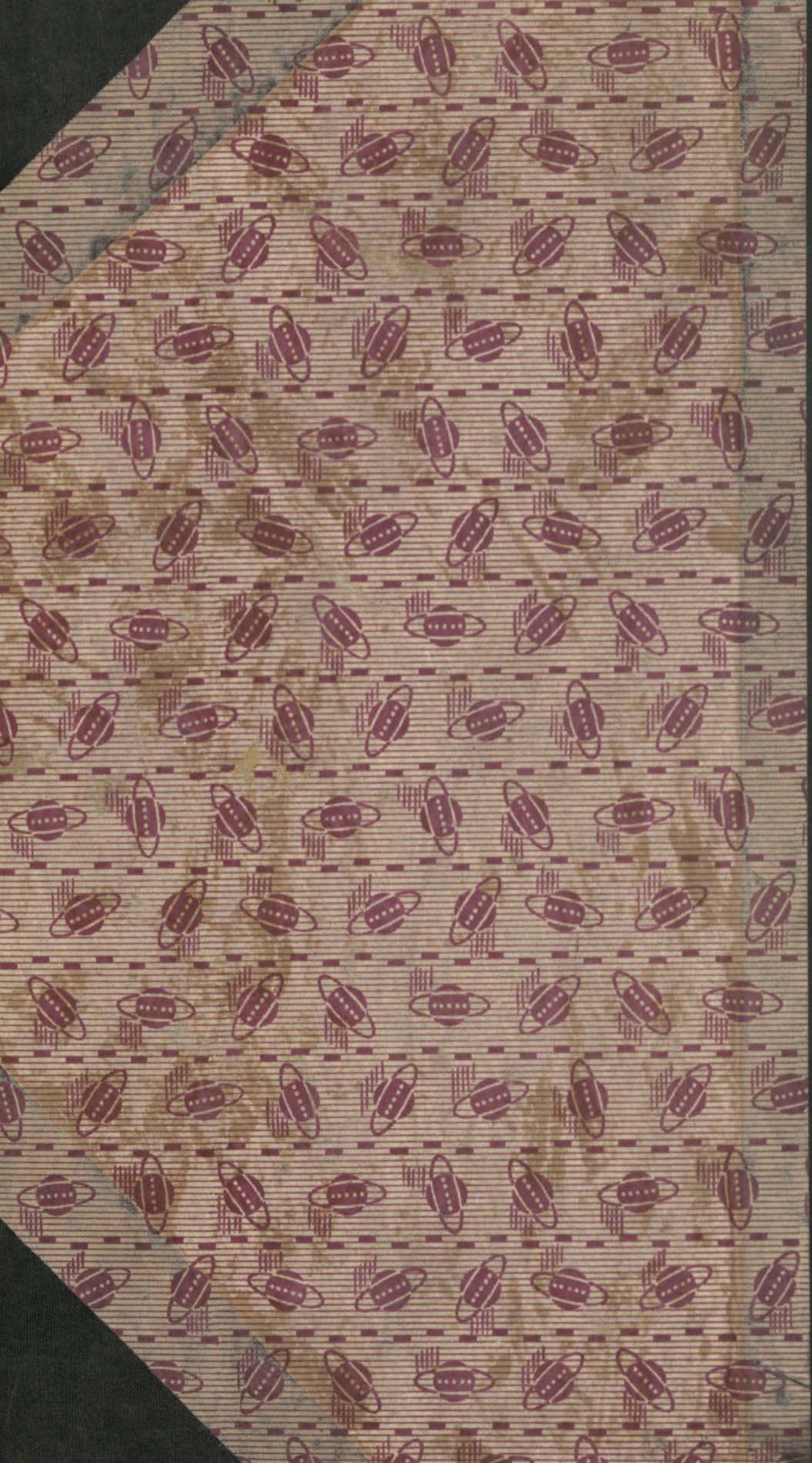
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